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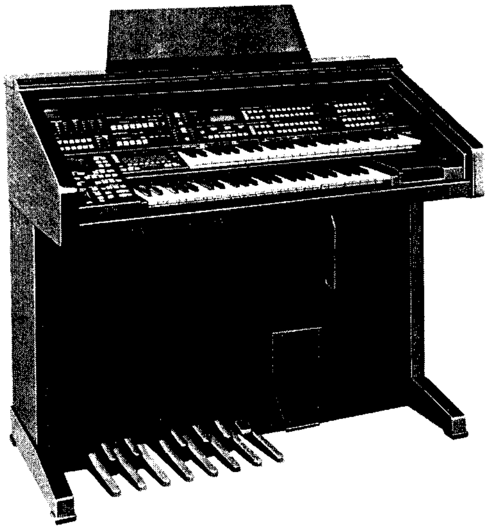
ORDER NO. EMID881221
A4 3882

# Service Manual

## Electronic Organ
## SX-GX7

(M), (MC), (EN), (EI), (EH), (EB), (EF), (EZ),
(EW), (EP), (EK), (XL), (XR), (XS), (X)



### AREAS

(M): U.S.A.
(MC): Canada
(EN): Norway, Sweden, Denmark, Finland
(EI): Italy
(EH): Holland
(EB): Belgium
(EF): France, Austria
(EZ): Germany
(EW): Switzerland
(EP): Spain
(EK): the United Kingdom
(XL): New Zealand
(XR): Australia
(XS): Malaysia, Singapore, South Africa
(X): the Middle East, Indonessia, Hong Kong, the Philippines, Taiwan

### Specifications

| | | | |
|---|---|---|---|
| KEYBOARD | | | UPPER MANUAL 49 KEYS, LOWER MANUAL 49 KEYS, PEDAL KEYBOARD 13 KEYS, FULL BASS PEDAL 1 KEY |
| DIGITAL DISK RECORDER | | | FSC, RECORD*, EJECT BUTTON, ACCESS INDICATOR, 1—20 (UPPER KEYBOARD), MEDLEY...MUSICAL DIRECTOR |
| ONE TOUCH PLAY | | | MARCH 1, 2, COUNTRY, DIXIE, SWING, BALLAD, JAZZ WALTZ, WALTZ, TANGO, RHUMBA, CHA CHA, GUARACHA, REGGAE, SALSA, SAMBA, BOSSA NOVA, 8 BEAT 1, 2, 16 BEAT 1, 2, SWING ROCK, DISCO 1, 2, SHUFFLE, BAROQUE, ORCHESTRA, POLKA, GIGUE, VIENNESE, BIGBAND, COMBO, ROCK'N'R...MUSICAL DIRECTOR |
| PLAY SEQUENCER | | | BASS, LOWER, UPPER, SOLO, RECORD* |
| VOICE SETTING COMPUTER | | | SET, 1—7, CANCEL |
| ORCHESTRAL CONDUCTOR | | | UPPER ...TAB, ORGAN, STRING ENSEMBLE, VOCAL ENSEMBLE, POLY, SPECIAL, SOLO<br>LOWER...TAB, ORGAN, STRING ENSEMBLE, VOCAL ENSEMBLE, POLY, SPECIAL, SOLO |
| UPPER TONES | TAB & ORGAN | TAB | FLUTE 16′, 8′, 5-1/3′, 4′, 2-2/3′, 2′, 1′<br>PERC 4′, 2-2/3′, TAB CANCEL, VOLUME |
| | | ORGAN | ORGAN PRESETS 1—5, ORGAN PROGRAM 1—4 (PIPE ORGAN 1—4, ENT ORGAN 1—4, JAZZ & ROCK ORGAN 1—8...MUSICAL DIRECTOR) |
| | POLY | | PIANO, ELECTRIC GRAND, ELECTRIC PIANO, HARPSICHORD, VIBRAPHONE, BANJO, GUITAR, JAZZ GUITAR, HAWAIIAN GUITAR, BRASS, OCTAVE BRASS (4 NOTES), FRENCH HORN, TENOR SAX, ACCORDION, BAGPIPE, SYNTH BRASS, SYNTH PERC 1, 2, VOLUME, HARMONIC CONTROL |
| | SPECIAL | | PIANO, ELECTRIC PIANO, STELL DRUM, GLOCKEN, JAZZ GUITAR, HARP, SYNTH PERC, STRING ENSEMBLE, VOCAL ENSEMBLE, TRUMPET, FLÜGELHORN, ALTO SAX, CLARINET, SYNTH BRASS, VOLUME, HARMONIC CONTROL |
| | | | PROGRAM PITCH (VARIABLE, OCTAVE, NOTE, DETUNE...MUSICAL DIRECTOR) |
| | SOLO | | VIOLIN, HARMONICA, WHISTLE, SOLID GUITAR, SYNTH LEAD 1, 2, 3, TROMBONE, TRUMPET, ALTO SAX, CLARINET, OBOE, FLUTE, PAN FLUTE, VOLUME, HARMONIC CONTROL |
| | STRING/VOCAL ENSEMBLE | | 16′/8′, VOLUME |

| | | | |
|---|---|---|---|
| LOWER TONES | TAB & ORGAN | TAB | FLUTE 8′, 4′, 2-2/3′, 2′, 1′, TAB CANCEL, VOLUME |
| | | ORGAN | ORGAN PRESETS 1—4, ORGAN PROGRAM (PIPE ORGAN 1—4, ENT ORGAN 1—4, JAZZ & ROCK ORGAN 1—8...MUSICAL DIRECTOR) |
| | POLY | | PIANO, ELECTRIC GRAND, ELECTRIC PIANO, HARPSICHORD, VIBETONE, BANJO, GUITAR, JAZZ GUITAR, CLAVI, BRASS, OCTAVE BRASS (4 NOTES), FRENCH HORN, TENOR SAX, ACCORDION, SYNTH BRASS 1, 2, SYNTH PERC 1, 2, VOLUME, HARMONIC CONTROL |
| | SPECIAL | | ○ (U/L) |
| | SOLO | | ○ (U/L) |
| | STRING/VOCAL ENSEMBLE | | 8′/4′, VOLUME |
| BASS TONES | | | ACOUSTIC, ELECTRIC, CHOPPER, SYNTH 1, 2, TIMPANI, BASS 16′, 8′, PIPE ORGAN 1, 2 STRING ENSEMBLE, TUBA, VOLUME, HARMONIC CONTROL |
| EFFECT | TREMOLO | | UPPER TAB & ORGAN, LOWER TAB & ORGAN, TREMOLO SLOW/FAST (TREMOLO SPEED-BASS, TREBLE...MUSICAL DIRECTOR) |
| | CHORUS | | UPPER TAB & ORGAN, LOWER TAB & ORGAN, UPPER POLY, LOWER POLY, U & L SPECIAL, U & L SOLO |
| | CELESTE | | UPPER TAB & ORGAN, LOWER TAB & ORGAN, UPPER POLY, LOWER POLY, U & L SPECIAL, U & L SOLO |
| SLOW ATTACK | | | UPPER TAB, LOWER TAB |
| SUSTAN | | | UPPER (CONTROL, OFF), U/L SPECIAL (CONTROL, OFF), LOWER (CONTROL, OFF) BASS (CONTROL, OFF) |
| DIGITAL REVERB | | | MODE (ROOM, HALL 1, 2, 3), DEPTH (CONTROL, OFF) |
| GLIDE | | | ○ (FOOT SWITCH) |
| TECHNI-CHORD | | | ○ (CLOSED, OPEN 1, 2, DUET...MUSICAL DIRECTOR) |
| RHYTHM | SELECTORS | | MARCH 1, 2, COUNTRY, DIXIE, SWING, BALLAD, JAZZ WALTZ, WALTZ, TANGO, RHUMBA, CHA CHA, GUARACHA, REGGAE, SALSA, SAMBA, BOSSA NOVA, 8 BEAT 1, 2, 16 BEAT 1, 2, SW ROCK, DISCO 1, 2, SHUFFLE...MUSICAL DIRECTOR |
| | CONTROLS | | START/STOP, SYNCHRO & BREAK, BALANCE (DRUMS), TEMPO/PROGRAM, DRUMS (MELLOW, VARIATION) |

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| | | |
|---|---|---|
| BACK GROUND SOUND | | THUNDER, WIND, BIRD, WAVES, BELLS, CANCEL, BALANCE |
| KEYBOARD PERCUSSION | | LOWER KEYBOARD...36 KEYS |
| FILL IN & INTRO | | 1, 2, SOLO |
| ENDING | | ○ VARIATION |
| ACCOMPANY | | RHYTHMIC, MELODIC, VARIATION, BALANCE |
| COMPOSER | | 1—6, RECORD*, (UPPER KEYBOARD) 1—16, PRESET PATTERN ①, ②, ③, CLEAR, BEAT, 2ND BAR, TRIPLET, ACCENT, SELECT, (LOWER KEYBOARD) KEYBOARD PERCUSSION |
| RHYTHM SEQUENCER | | ON, RECORD* |
| PLAY MODE | PLAY MODE | FINGERED, MEMORY |
| | PROGRAM CHORD COMPUTER | PCC, RECORD*, (LOWER KEYBOARD)<br>𝄆𝄞—, ◄, ►, ⊢⌒⊣, ⊢⌒—⊣, ⊢⊢⊣⊣, 𝄋 𝄌,<br>*D.S.*, —𝄂, ⊂⊃, ⊣ ⊢ |
| TEMPO SET | | SET, 1, 2, MANUAL, FINE, TEMPO/PROGRAM |
| BASS SOLO | | ON |
| TRANSPOSE | | UP (+D$^{b}$, +D, +E$^{b}$, +E, +F, +F#)<br>DOWN (−B, −B$^{b}$, −A, −A$^{b}$, −G) |
| TUNING | | TUNING (434~446 Hz), ORCH TUNING...MUSICAL DIRECTOR |
| MUSICAL DIRECTOR | | RHYTHM, ONE TOUCH PLAY, SOUND PROGRAM, MIDI & CONTROL, 1—4, 8 SELECTORS |
| MUSICAL DISPLAY | | ○ |
| PROGRAM FUNCTION SWITCH | | FOOT SWITCH L, R, KNEE LEVER, FULL BASS PEDAL, RECORD* |
| MIDI | | MIDI PROGRAM CHANGE<br>MIDI PART (BASS, LOWER, UPPER, SOLO), OCTAVE, P CHANGE, EFFECT, SUSTAIN, FSC EN, SONG SELECT, MIDI CLK, START/STOP...MUSICAL DIRECTOR |

| | |
|---|---|
| TERMINALS (Below the lower keyboard) | PHONES.....use headphones with 16Ω impedance<br>MIC.............input level 7.5mV, 10KΩ, MIC VOLUME<br>LINE OUT ...output level 300mV, 600Ω<br>2CH output (L, R...Phono Jacks) |
| TERMINALS (On the rear panel) | AUX IN........input level 500mV, 30KΩ<br>L, R/R+L terminals<br>LINE OUT ...output level 300mV, 600Ω<br>2CH output (L, R/R+L)<br>3CH output (3, 2, 1)<br>SEPARATED LINE OUT...output level 500mV, 600Ω<br>MAIN MIX ON/OFF, BASS, DRUMS (L, R/R+L), EXP/DIRECT<br>MIDI............IN, OUT, THRU |
| OTHERS | POWER SWITCH, MAIN VOLUME, EXPRESSION PEDAL, INITIAL KEY (UPPER KEYBOARD) |
| OUTPUT | 200W |
| SPEAKERS | 30cm (11-13/16″) × 1, 20cm (7-7/8″) × 3, HORN TWEETER × 2 |
| POWER REQUIREMENT | 320W 420VA (Canada) |
| | AC 120/220/240V 50/60Hz,<br>AC 120V 60Hz – NORTH AMERICA<br>AC 220V 50/60Hz – EUROPE (EXCEPT FOR ENGLAND) |
| DIMENSIONS (W × H × D) | 118.2cm × 103.4cm × 60.1cm<br>(46-17/32″ × 40-23/32″ × 23-21/32″) |
| NET WEIGHT (WITHOUT BENCH) | 86kg (189.6 lbs.) |
| OPERATING CONDITIONS (DIGITIAL DISK RECORDER) | TEMPERATURE: 10° ~40° C (50° ~104° F)<br>HUMIDITY: 20%~80% |
| ACCESSORIES | DIGITAL MEMORY DISK...1 |

**NOTES:** (*) Common RECORD button is used for these buttons.
Underlined tones also have sound variations.

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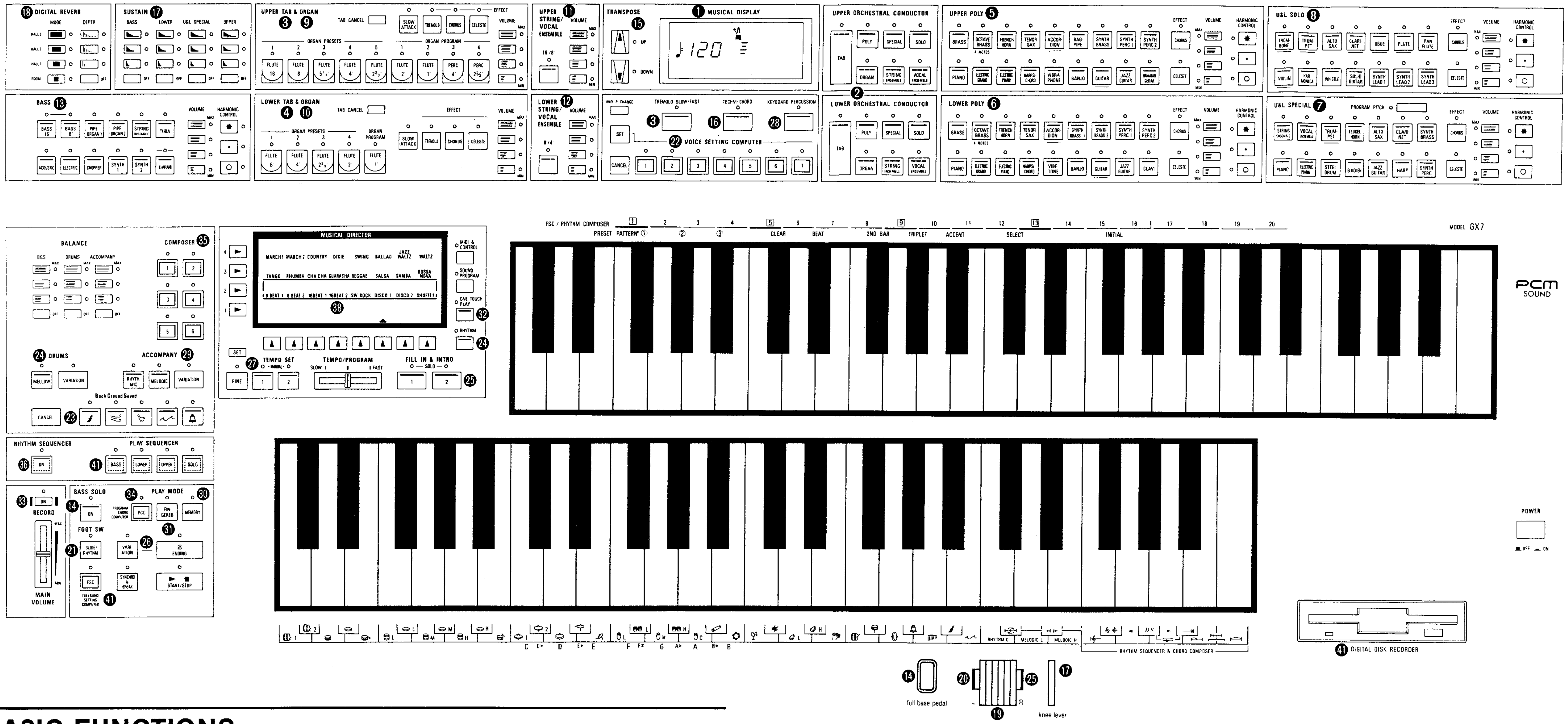
# ARRANGEMENT OF CONTROL PANEL



⓲ DIGITAL REVERB
SUSTAIN ⓱
UPPER TAB & ORGAN ❸ ❾
UPPER STRING/VOCAL ENSEMBLE ⓫
TRANSPOSE ⓯
❶ MUSICAL DISPLAY
UPPER ORCHESTRAL CONDUCTOR
UPPER POLY ❺
U&L SOLO ❽
BASS ⓭
LOWER TAB & ORGAN ❹ ❿
LOWER STRING/VOCAL ENSEMBLE ⓬
VOICE SETTING COMPUTER ㉒
❷ LOWER ORCHESTRAL CONDUCTOR
LOWER POLY ❻
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BASS SOLO ⓮
PLAY MODE ㉚
RECORD ㉝
FOOT SW ㉛
MAIN VOLUME
FSC / RHYTHM COMPOSER
PRESET PATTERN
MODEL GX7
PCM SOUND
POWER
㊶ DIGITAL DISK RECORDER
full base pedal
knee lever

# BASIC FUNCTIONS

**❶ MUSICAL DISPLAY**
The rhythm tempo and beat are normally displayed. The display can also show the transposed chord or function as a stopwatch. If you use any of the various memories, their contents are displayed while you store or play back.

**❷ ORCHESTRAL CONDUCTOR**
These buttons allow you to select groups of voices and their effects instantly. The voice groups are selected independently for the upper and lower keyboards.

**❸ UPPER TAB**
These voices are selected for the upper keyboard by turning on the **TAB** button of the **UPPER ORCHESTRAL CONDUCTOR**. Included are the flute and percussive sounds, plus tremolo and celeste effects. A **TAB CANCEL** button allows you to turn off all the **TAB** voices immediately.

**❹ LOWER TAB**
Select these voices for the lower keyboard by turning on the **TAB** button of the **LOWER ORCHESTRAL CONDUCTOR**. Like the **UPPER TAB** buttons, the voices can be combined or selected individually.

**❺ UPPER POLY**
Turning on the **POLY** button of the **UPPER ORCHESTRAL CONDUCTOR** will select these sounds for the upper keyboard. They include the sounds of orchestral and percussive instruments.

**❻ LOWER POLY**
Select these voices for the lower keyboard by turning on the **POLY** button of the **LOWER ORCHESTRAL CONDUCTOR**. As with other lower keyboard voices, they are used mostly for accompaniment.

**❼ U&L SPECIAL**
These voices can be selected for either the upper or lower keyboard by turning on the **SPECIAL** button in the **UPPER** or **LOWER ORCHESTRAL CONDUCTOR**. They comprise both orchestral and percussive instruments.

**❽ U&L SOLO**
Select these monophonic sounds for either the upper or lower keyboard by turning on the **SOLO** button in the **UPPER** or **LOWER ORCHESTRAL CONDUCTOR**. Select only **SOLO** for a keyboard, or combine with other voices using the **ORCHESTRAL CONDUCTOR**.

⑨ **UPPER ORGAN**
These voices are selected for the upper keyboard when the **ORGAN** button of the **UPPER ORCHESTRAL CONDUCTOR** is on. Five preset organ voices are always available, and in addition, four more preset sounds can be selected from the **MUSICAL DIRECTOR** and stored for instant recall.

⑩ **LOWER ORGAN**
Select these voices for the lower keyboard by turning on the **ORGAN** button of the **LOWER ORCHESTRAL CONDUCTOR**. Four preset organ voices are always available. For the GX5/GX7, an additional preset sound can be selected from the **MUSICAL DIRECTOR** and stored for quick recall.

⑪ **UPPER STRING/VOCAL ENSEMBLE**
These voices are selected for the upper keyboard with the **STRING ENSEMBLE** or **VOCAL ENSEMBLE** button of the **UPPER ORCHESTRAL CONDUCTOR**. As the names imply, these buttons allow you to create the effects of an orchestral string or choral section.

⑫ **LOWER STRING/VOCAL ENSEMBLE**
Select these voices for the lower keyboard with the **STRING ENSEMBLE** or **VOCAL ENSEMBLE** button of the **LOWER ORCHESTRAL CONDUCTOR**.

⑬ **BASS**
These are the voices for the pedal keyboard. As with other sound groups, the volume of the pedal voices is adjusted with the separate **VOLUME** buttons.

⑭ **Full Bass Pedal/BASS SOLO**
While the full bass pedal is pressed, the lowest note played on the lower keyboard is selected and played as the bass note; but the voices and effects are those selected by the **BASS** voice section. If the full bass pedal is pressed with the **BASS SOLO** button on, only the bass solo is heard when you play the lower keyboard.

⑮ **TRANSPOSE**
C is the standard setting, but you can raise or lower the key of the entire organ with the two buttons. The transposed key is shown on the **MUSICAL DISPLAY**.

⑯ **TECHNI-CHORD**
Chord notes played on the lower keyboard are added to melody notes played on the upper keyboard. Choose from four harmonic styles.

⑰ **SUSTAIN/Knee Lever**
Sustain can be applied to the upper, lower and/or pedal keyboard to allow the sound to fade away gradually. Adjust the length of the sustain with the **SUSTAIN** buttons. Turn the sustain on and off quickly with the knee lever.

⑱ **DIGITAL REVERB**
Apply a reverberation effect to the organ sound, and select from three levels of echo depth.

⑲ **Expression Pedal**
Increase and decrease the loudness of all the organ voices as you play to add expression to the music.

⑳ **Glide Control**
Lower the pitch or the organ by one half-tone by pressing this control. This is used, for example, for the Hawaiian guitar effect and can be applied to many of the upper and lower keyboard voices.

㉑ **FOOT SW for GLIDE/RHYTHM**
The glide control can be used instead to conveniently turn the rhythm on and off by turning this button on.

㉒ **VOICE SETTING COMPUTER**
Set up the voices and effects for the upper, lower and pedal keyboards, and then store them in these 7 buttons for instant recall as you play.

㉓ **BACK GROUND SOUND**
Five unique background sounds add special life and interest to your performance. The volume is adjusted with the **BGS** buttons in the **BALANCE** section.

㉔ **Rhythm**
Select a preset rhythm from the **MUSICAL DIRECTOR**; turn the rhythm on/off with the **START/STOP** button or **SYNCHRO & BREAK** button; adjust the volume with the **DRUMS** buttons (**BALANCE**); set the tempo—a complete rhythm section.

㉕ **FILL IN & INTRO**
Add a drum introduction or a fill-in (break) at the touch of a button during your performance.

㉖ **ENDING**
When this button is pressed, an ending rhythm pattern will be played and then the rhythm will stop.

㉗ **TEMPO SET**
Store two of your favorite tempos in the buttons for instant recall while playing.

㉘ **KEYBOARD PERCUSSION**
Turning this button on transforms your lower keyboard into a whole band of percussive instruments and special sounds. The keys are picture-coded for quick and easy selection.

㉙ **ACCOMPANY**
This feature is used with the automatic rhythms and provides chords that are perfectly synchronized with the selected rhythm. Use the **ACCOMPANY** buttons (**BALANCE**) to adjust the volume.

㉚ **PLAY MODE**
Select the type of accompaniment—either normal or automatic—or choose the accompaniment you programmed beforehand in the **PROGRAM CHORD COMPUTER**.

㉛ **Auto Play Chord**
This feature is selected when the **FINGERED** button in the **PLAY MODE** is turned on. When a single key on the lower keyboard is pressed, a full chord and a bass note sound. Play major, minor, seventh or minor seventh chords and the bass note just by pressing one key.

㉜ **ONE TOUCH PLAY**
With this special **MUSICAL DIRECTOR** feature, you select a rhythm or type of music, and appropriate voices and effects are automatically set.

㉝ **RECORD**
This button is used to store the contents of the organ's various memories, including the **PLAY SEQUENCER**, **FULLBAND SETTING COMPUTER**, **COMPOSER**, **RHYTHM SEQUENCER** and **PROGRAM CHORD COMPUTER**, or to store your performance with the Digital Disk Recorder. It is also used when setting the functions of the programmable switches.

㉞ **PROGRAM CHORD COMPUTER**
Use this feature to store the chord accompaniment of an entire song in the organ, then have it played back automatically while you play the melody. With the keys at the right end of your lower keyboard, store whole, half- or quarter-measure chords, specify repeat play, and more.

㉟ **COMPOSER**
Three methods are available for you to create your own rhythm patterns using the lower keyboard **KEYBOARD PERCUSSION** sounds and the upper keyboard programming keys. Then recall the rhythms at the touch of a button while you play.

㊱ **RHYTHM SEQUENCER**
Store the rhythms for an entire tune, either preset rhythms from the **MUSICAL DIRECTOR** or ones you create yourself. Merely press the **RHYTHM SEQUENCER** button to have the entire rhythm sequence played back automatically.

㊲ **Program Function Switches**
The knee lever, left foot switch, right foot switch and full bass pedal can be programmed to conveniently turn on and off other functions, for example the rhythm start/stop or **TECHNI-CHORD**.

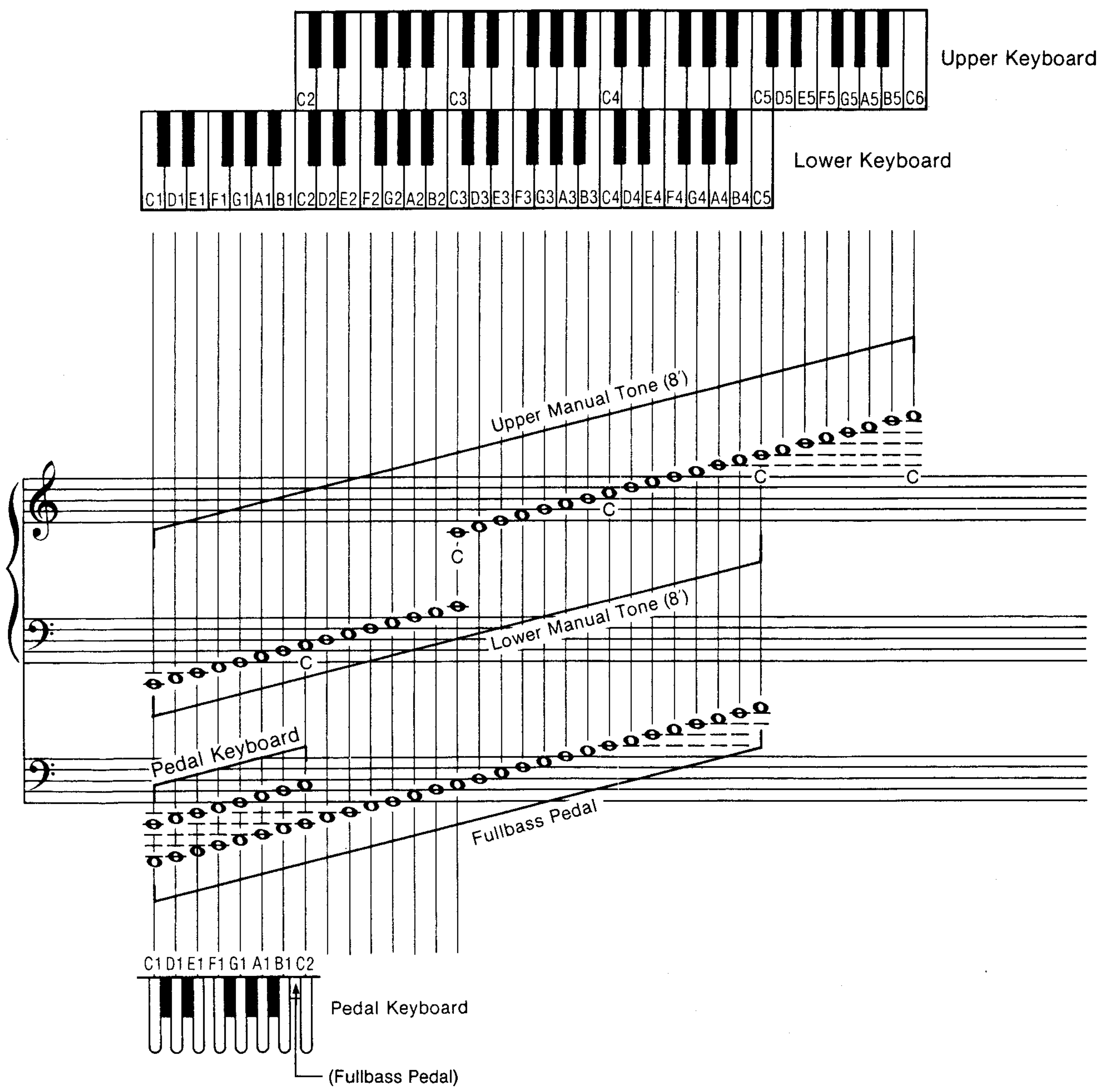
㊳ **MUSICAL DIRECTOR**
This multi-function matrix allows you to select a preset rhythm; use the **ONE TOUCH PLAY** feature; choose voice, rhythm and chord variations; adjust the tuning; set MIDI functions; and much more.

㊶ **DIGITAL DISK RECORDER**
The Digital Disk Recorder allows virtual unlimited storage and playback of your organ performances. Several tunes or one very long tune can be stored on each digital memory disk. Play and store the parts separately—bass, upper keyboard, lower keyboard and solo voices.
The sequence is then synchronized and played back automatically.

# KEYBOARD RANGES

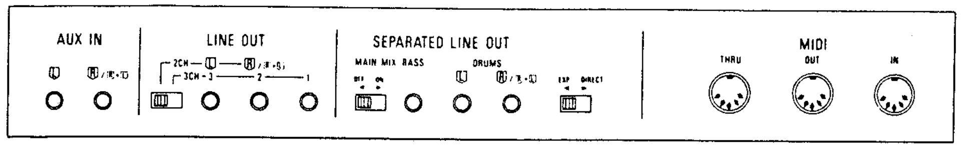
Upper Keyboard ............49 Keys (4 Octaves)
Lower Keyboard ............49 Keys (4 Octaves)
Pedal Keyboard .............13 Keys (1 Octave)+Fullbass Pedal

*An 8-foot compass is used for each keyboard.


Upper Keyboard
C2
C3
C4
C5 D5 E5 F5 G5 A5 B5 C6
Lower Keyboard
C1 D1 E1 F1 G1 A1 B1 C2 D2 E2 F2 G2 A2 B2 C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4 A4 B4 C5
Upper Manual Tone (8')
Lower Manual Tone (8')
Pedal Keyboard
Fullbass Pedal
C
C1 D1 E1 F1 G1 A1 B1 C2
Pedal Keyboard
(Fullbass Pedal)

# CONNECTION TERMINALS

**(On the rear panel)**


AUX IN
Ⓛ
Ⓡ/Ⓡ+Ⓛ
LINE OUT
2CH — Ⓛ — Ⓡ/Ⓡ+Ⓛ
3CH - 3 — 2 — 1
SEPARATED LINE OUT
MAIN MIX
OFF ON
BASS
DRUMS
Ⓛ
Ⓡ/Ⓡ+Ⓛ
EXP DIRECT
MIDI
THRU
OUT
IN

**■ AUX IN** (input level 500mV, 30kΩ)

Use these inputs to connect the audio outputs of other audio equipment, such as a tape deck, VCR, tuner, or an audio mixer, for playback through the organ. If connecting a monaural line, connect it to the **R/R+L** terminal.

**■ LINE OUT** (output level 300mV, 600Ω)

Use these outputs to connect the audio output of the organ to other audio equipment, such as a tape deck, VCR, audio mixer, tone cabinets, or additional amplifier/speaker systems.
When the **MAIN MIX** switch is set to OFF, the **BASS** and **DRUMS** sections are disconnected from the **LINE OUT** terminals on the front and rear panel.

**■ SEPARATED LINE OUT**
(output level 500mV, 600Ω)

Use these outputs to connect the audio outputs of the **BASS** and **DRUMS** sections only to other audio equipment. When the **MAIN MIX** switch is set to OFF, the **BASS** and **DRUMS** sections are disconnected from the **LINE OUT** terminals.

When not using the **SEPARATED LINE OUT** terminals, be sure the **MAIN MIX** selector is set to **ON.**

When the **EXP/DIRECT** selectors is set to **EXP**, the outputs from the **BASS** and **DRUMS** terminals respond to expression pedal changes; when set to **DIRECT**, these outputs do not change in response to changes in the expression pedal.

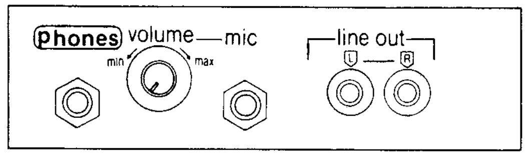
**■ MIDI (Musical Instrument Digital Interface)**

MIDI is standard specification that enables connection to equipment such as synthesizers and personal computers. Data transmission and reception are possible between the Technics organ and equipment provided with MIDI terminals.

| | |
|---|---|
| **IN:** | The terminal that receives data from external equipment. |
| **OUT:** | The terminal that transmits data from the organ to external equipment. |
| **THRU:** | The terminal that transfers data from the **IN** terminal directly to other equipment. |

- Use a 5-pin DIN cord (less than 15m long) for these connections.
- When this organ is connected to other equipment in a loop (**IN → OUT, OUT → IN** connection), the organ may not operate properly. In this case, eliminate one of the connections.
- This organ can transmit or receive data for **UPPER, LOWER, BASS** and **SOLO** parts.

**(Below the lower keyboard)**


Phones
volume — mic
min
max
line out
Ⓛ — Ⓡ

**PHONES** (Use headphones with 16 ohm impedance.)
For silent practice headphones may be used. When plugged in, the organ's speaker system is automatically switched off, and the entire organ is heard only through the headphones.

**MIC** (input level 7.5mV, 10kΩ)
The organ will accept a microphone of the uni-directional type. This type of microphone reduces feedback to the minimum.

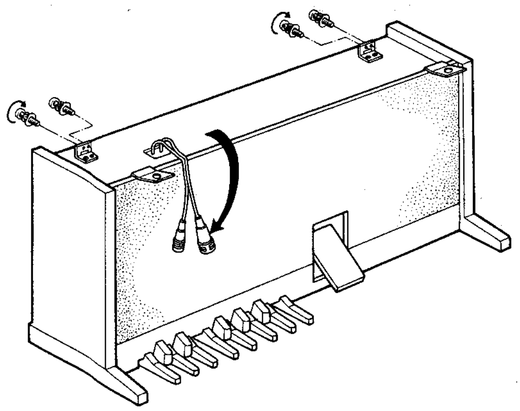
**MIC VOLUME** balances instrumental or vocal sounds fed into the microphone with the loudness of the organ.

**LINE OUT** (output level 300mV, 600Ω)
Phono jacks are provided for 2-channel (L/R) output. Use these outputs to connect the audio output of the organ to other audio equipment, such as a tape deck, VCR, audio mixer, tone cabinets, or additional amplifier/speaker systems.

When the **MAIN MIX** switch is set to OFF, the **BASS** and **DRUMS** sections are disconnected from the **LINE OUT** terminals on the front and rear panel.

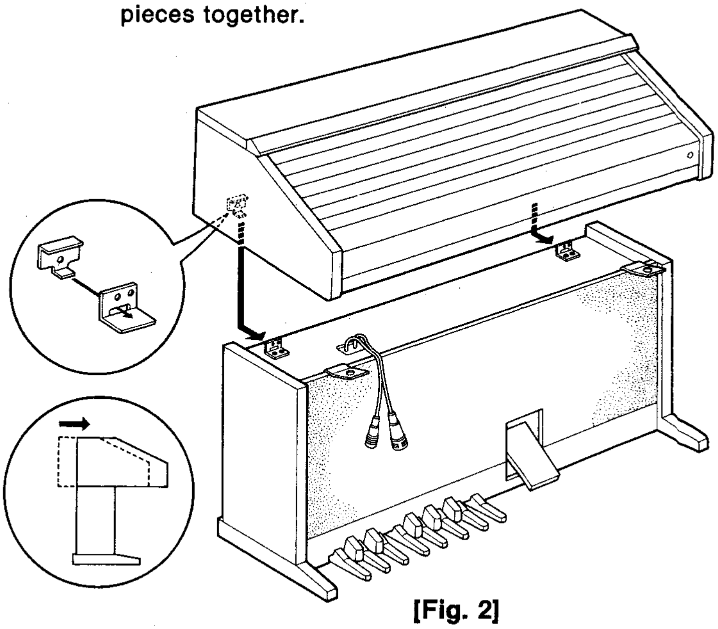
# HOW TO ASSEMBLE THE ORGAN

1 On the lower stand part, remove the four bolts from the metal joints. Lay the cords to the front of the stand.



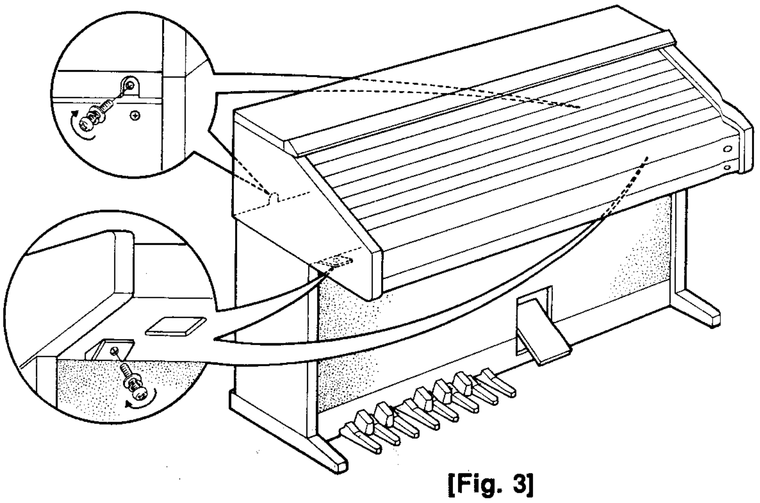
[Fig. 1]

2 Place the upper organ part on the lower stand part, making sure to fit the metal pieces together.



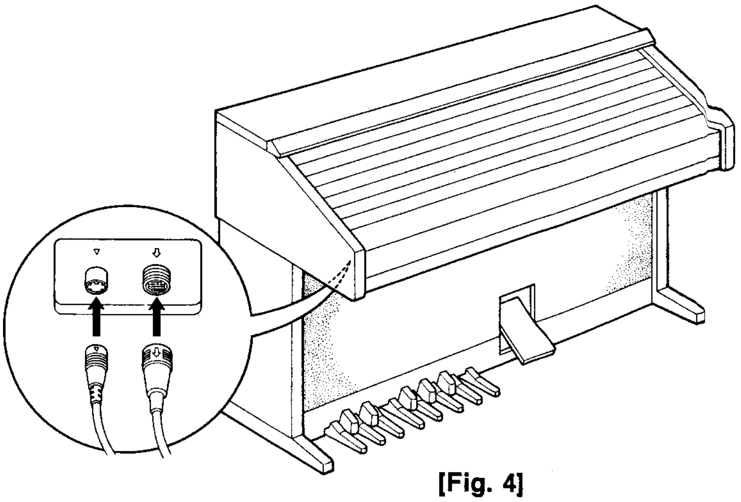
[Fig. 2]

3 Using the four bolts removed in step 1, secure the upper organ part to the lower organ part as shown in the figure.



[Fig. 3]

4 Connect the two cords from the lower stand part to the respective terminals on the underside of the upper organ part. Unlock the cover with the accessory key.



[Fig. 4]

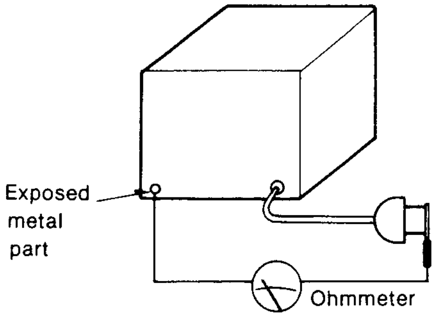
# SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

- **Safety Precaution**

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

- **Insulation Resistance Test**

1. Unpulg the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc..
   Mesurements should range from 3MΩ to infinity to all exposed parts.



**[Fig. 5]**

Resistance=3MΩ to ∞

# PRECAUTIONS BEFORE SERVICING

## ■ Precautions for measuring of the output waveforms.

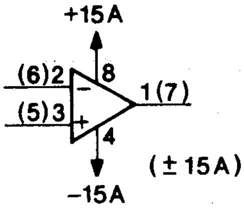
1. Please set the INITIAL mode before measurement.
   - INITIAL mode: Press the FSC button to turn it on, and then press the INITIAL key on the upper keyboard.
2. After INITIAL mode, set the measurement conditions as each check points.
3. The waveform was measured by "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may somewhat change due to variation of timing of measure.
4. The voltage shown in the photo is 1/10 of the actual value. However, the actual voltage is 10 times of as shown in this photo.

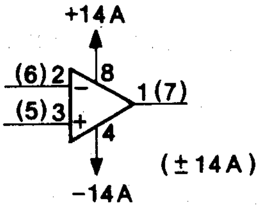
## ■ Important safety notice:

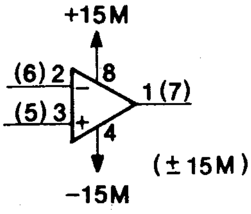
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

## Power supply of OP Amp IC

1. Power supply of **EJ** circuit is using three different type of voltage supply. Voltage supply to each OP Amp IC as shown the figure.







- •(±15A): ±15V D.C. supply for analog circuit.
- •(±14A): ±14V D.C. supply for modulation circuit.
- •(±15M): ±15V D.C. muting power supply for noise suppression.

2. Other circuit of power supply (except **EJ** circuit) is only using ±15V (A).

## Symbolic Marks

The symbolic marks for resistors and capacitors, which are used in the circuits for this organ, are as shown in TABLE-1 and TABLE-2.

1. RESISTORS
   - Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
   - All resistors are 1/4WATT, ±5% TOLERANCE unless otherwise designated in the schematic diagrams.

(TABLE-1)

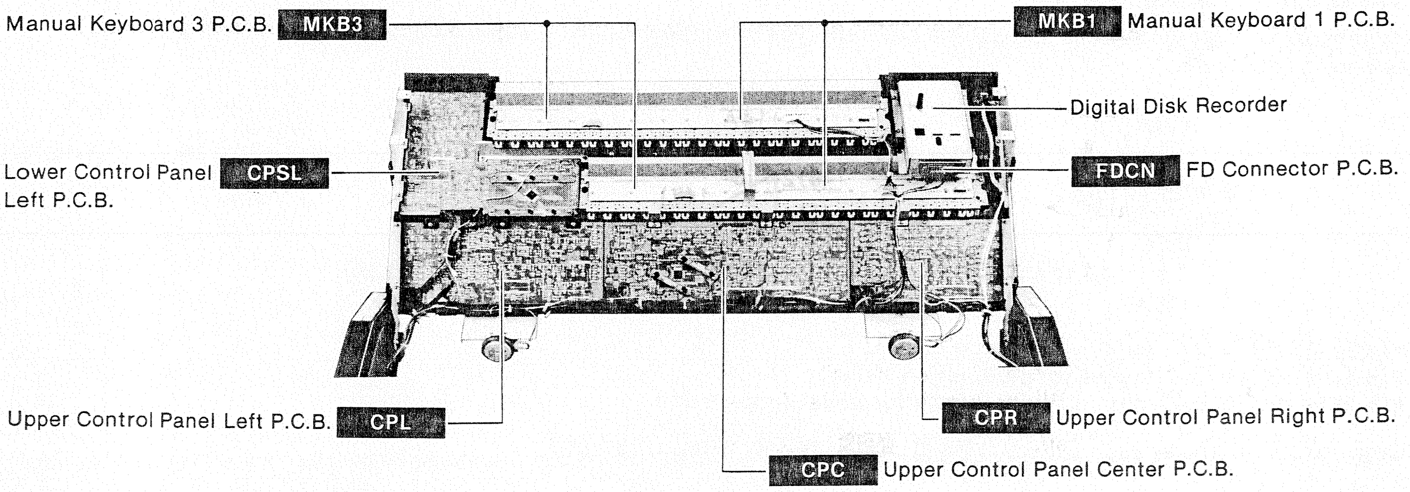
| SYMBOL | SPECIFICATION | SYMBOL | SPECIFICATION |
|---|---|---|---|
| Ⓕ | Fixed Carbon Film Resistors "FLAME-PROOF" (ERD—F—type) | Ⓕ | Fixed Metal Film Resistors "FLAME-PROOF" (ERX—type) |
| Ⓕ | Fixed Wire Wound Resistors "FLAME-PROOF" (ERF—type) | 🄵 | Fuse Type Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERQ—type) |
| Ⓕ | Fixed Metal Oxide Film Resistors "FLAME-PROOF" (ERG—type) | 🄵 | Fuse Type Fixed Carbon Film Resistors "FLAME-PROOF" (ERD2FC—type) |
| | Fixed Metal Film Resistors (Precision and High Stability) (ERO—type) | | |

2. CAPACITORS
   - Capacitors without symbolic mark are POLYESTER CAPACITORS. (ECQM-type, ECQG-type, ±10% Tolerance)
   - Polarized capacitors without symbolic mark are Aluminum Electrolytic Capacitors. (ECEA—type, ±20% Tolerance)

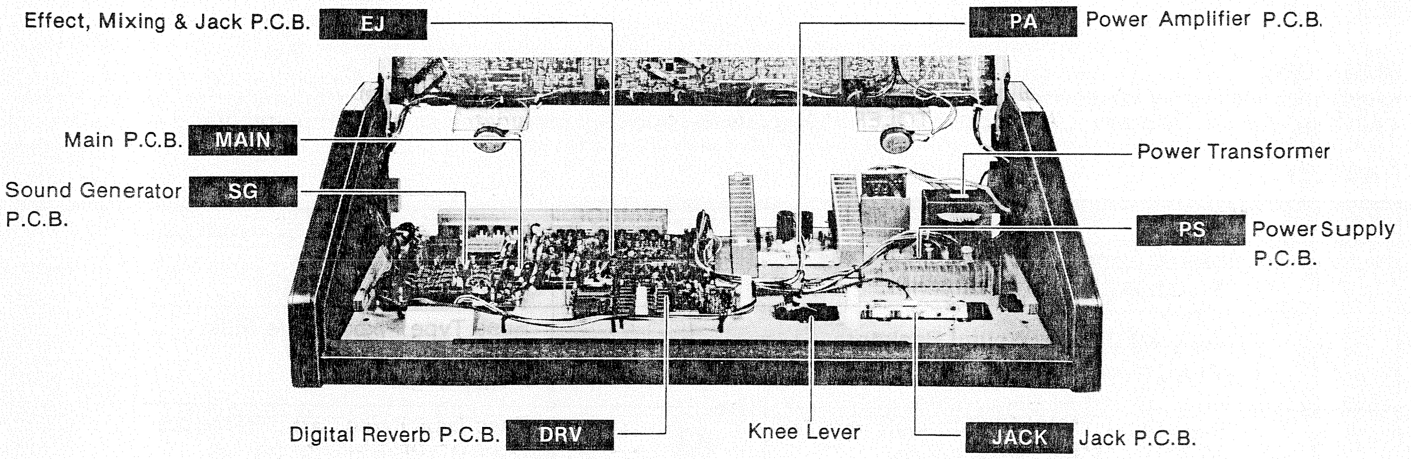
(TABLE-2)

| SYMBOL | SPECIFICATION | TYPE |
|---|---|---|
| Ⓝ | Non-Polarised Electrolytic Capacitors | ECEA—N—type |
| Ⓨ | Non-Polarised Electrolytic (for Network System) | ECEA—Y—type |
| Ⓚ | Aluminum Electrolytic Capacitors (Miniature type) | ECEA—K—type<br>ECEA—X—type |
| (MS) | Aluminum Electrolytic Capacitors (Low leakage current type) | ECEA—M—type |
| Ⓩ | Aluminum Electrolytic Capacitors (Low impeadance type) | ECEA—Z—type |
| (TF) | Metalized Plastic Film Capacitors (TF Series) | ECQV—type |
| (TF) | Polyester Film Capacitors | ECQB—type |
| ○ | Temprature Compensating Ceramic Capacitors | ECC—type |
| ○ | High-Dielectric Constant Ceramic Capacitors | ECK—type |
| | Metalized Polyester Film Capacitors for Across the Line | ECQ—EW—type |
| | Aluminum Electrolytic Capacitors for smooting Circuit | ECES—type |

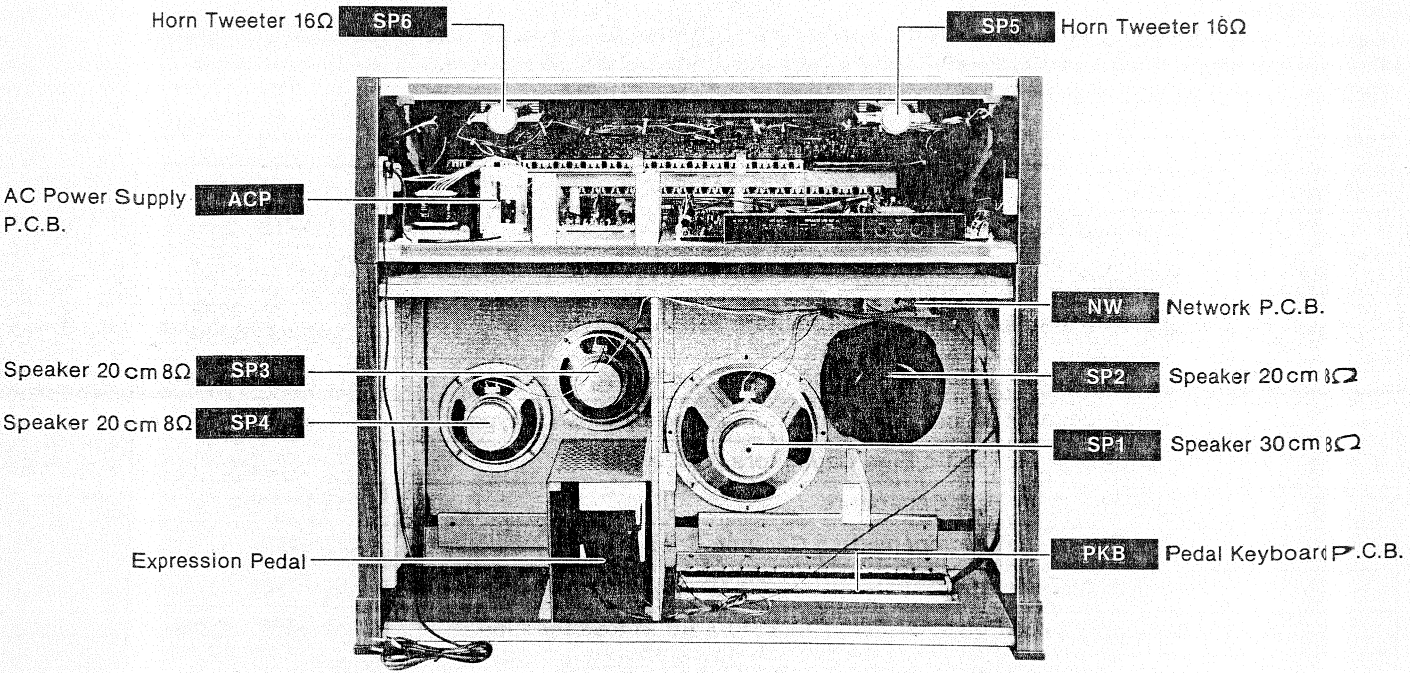
# PARTS LOCATION


Manual Keyboard 3 P.C.B. MKB3
MKB1 Manual Keyboard 1 P.C.B.
Digital Disk Recorder
Lower Control Panel Left P.C.B. CPSL
FDCN FD Connector P.C.B.
Upper Control Panel Left P.C.B. CPL
CPR Upper Control Panel Right P.C.B.
CPC Upper Control Panel Center P.C.B.

[Photo-1]


Effect, Mixing & Jack P.C.B. EJ
PA Power Amplifier P.C.B.
Main P.C.B. MAIN
Power Transformer
Sound Generator P.C.B. SG
PS Power Supply P.C.B.
Digital Reverb P.C.B. DRV
Knee Lever
JACK Jack P.C.B.

[Photo-2]

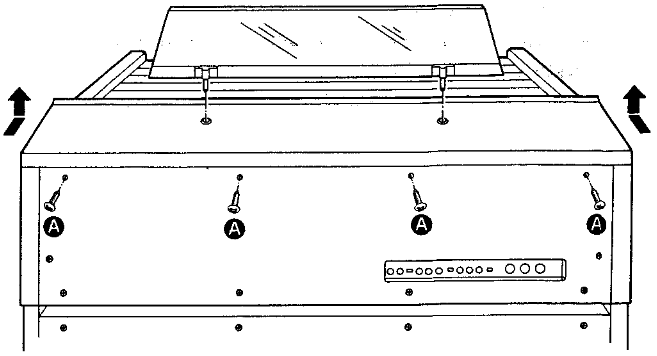

Horn Tweeter 16Ω SP6
SP5 Horn Tweeter 16Ω
AC Power Supply P.C.B. ACP
NW Network P.C.B.
Speaker 20 cm 8Ω SP3
SP2 Speaker 20 cm 8Ω
Speaker 20 cm 8Ω SP4
SP1 Speaker 30 cm 8Ω
Expression Pedal
PKB Pedal Keyboard P.C.B.

[Photo-3]

# DISASSEMBLY INSTRUCTIONS

## 1. Top Cover

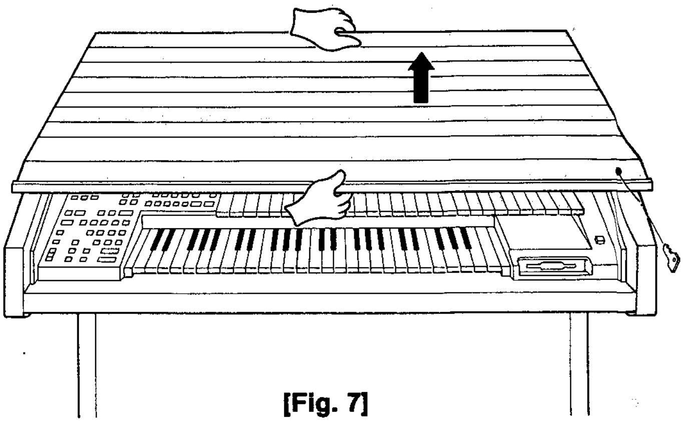
a) Remove the 4 screws Ⓐ located on the rear board.
b) Remove the top cover, slide it forward and lift.



[Fig. 6]

## 2. Sliding Cover

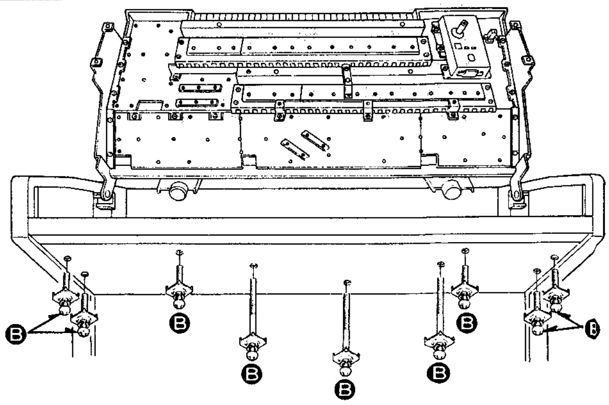
a) Remove the top cover according to step 1.
b) Unlock the sliding cover with the accessory key.
c) Remove the sliding cover in its fully closed position.



[Fig. 7]

## 3. Control Panel with Keyboard Unit

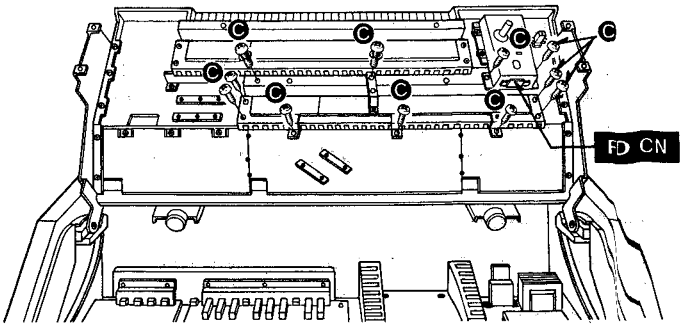
a) Remove both top cover and sliding cover according to steps 1 and 2.
b) Remove the 9 screws Ⓑ on the bottom of the shelf-board.
c) Then the control panel with keyboard unit can be opened upwards.



[Fig. 8]

## 4. Upper Keyboard

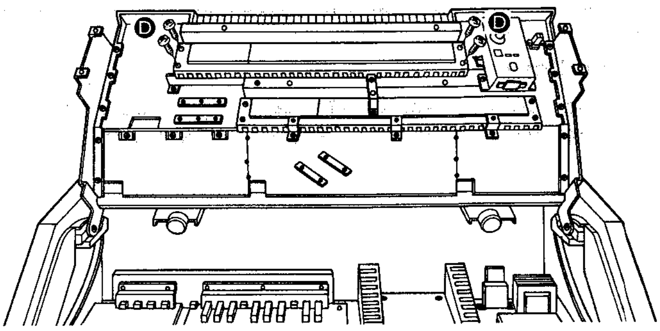
a) Open the control panel with keyboard unit according to step 3.
b) Remove the 11 screws Ⓒ which fasten the upper keyboard chassis.
c) Pull out the connectors from the manual keyboard P.C.B. and FD connector P.C.B.
d) Then the upper keyboard can be removed.



[Fig. 9]

## 5. Lower Keyboard

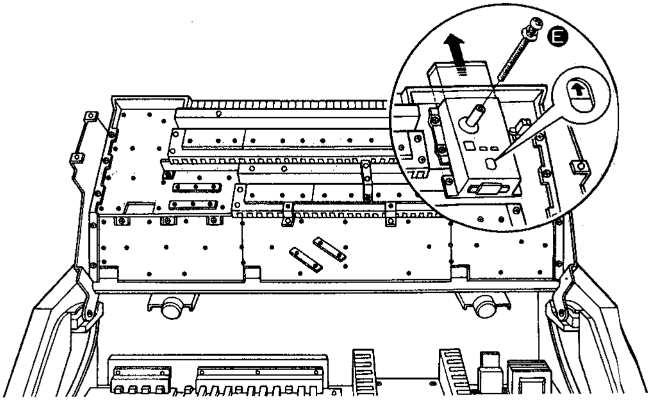
a) Open the control panel with keyboard unit according to step 3.
b) Remove the 4 screws Ⓓ which fasten the lower keyboard chassis.
c) Then the lower keyboard can be removed.



[Fig. 10]

## 6. Digital Disk Recorder

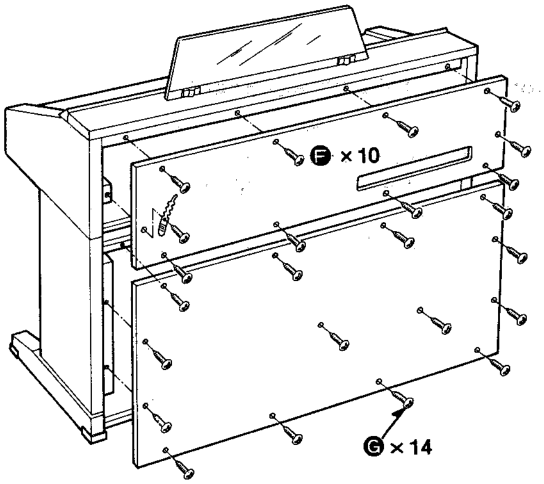
a) Open the control panel with keyboard unit according to step 3.
b) Remove the screw Ⓔ which fasten the digital disk recorder.
c) Pushing the digital disk recorder from the window of the DDR chassis.
d) Then the digital disk recorder can be removed from the front panel.



[Fig. 11]

## 7. Rear Board

a) Upper cabinet section
Remove the 10 screws Ⓕ on the rear board.
b) Lower cabinet section
Remove the 14 screws Ⓖ on the rear board.
Then the rear board can be removed.



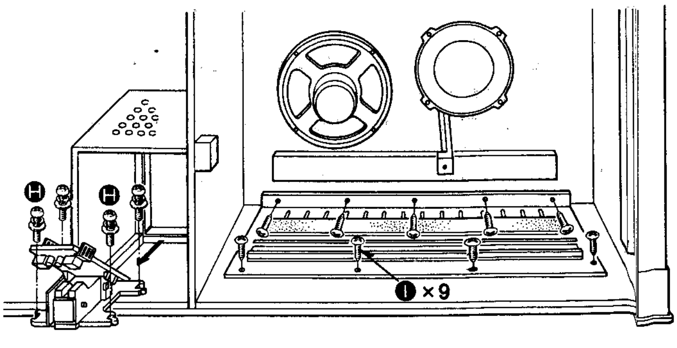
[Fig. 12]

## 8. Expression Pedal Unit

a) Remove the rear board of the lower cabinet.
b) Remove the 4 screws Ⓗ which fasten the expression pedal unit.
c) The expression pedal unit can be removed.

## 9. Pedal Keyboard

a) Remove the rear board of the lower cabinet.
b) Remove the 9 screws Ⓘ which fasten the pedal keyboard chassis.
c) Incline the cabinet toward the rear side, and remove the pedal keyboard from the bottom plate of the cabinet.



[Fig. 13]

# MEASUREMENTS AND ADJUSTMENTS

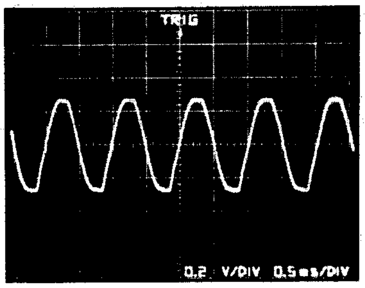
## ■ Measuring Equipment

- Oscilloscope 20MHz, 10 : 1 probe
- Oscillator, 1kHz sine wave, 0~10Vp-p, 600Ω
- Capacitor, 50V 1μF (ECEA1HN010S)

| ADJUSTMENT | MEASURING CONDITIONS | EQUIPMENT | ADJUSTMENT P.C.B. | ADJ. POINT | CONNECT METER TO | METER READING |
|---|---|---|---|---|---|---|
| BBD bias (Tremolo) | any position | Oscilloscope and oscillator | EJ P.C.B. | VR3 | Check point ㉗ | Photo-A |
|  | 1. Connect the oscilloscope to check point ㉗ of EJ circuit board.<br>2. Input 1kHz sine wave to IC52-③ pin by oscillator through capacitor of less than 50V 1μF. Then, adjust the output level of oscillator until the sinewave on the oscilloscope is clipped.<br>3. Adjust VR3 so that the output waveforms on the oscilloscope are evenly clipped at top and bottom. |  |  |  |  |  |
| BBD bias (Celeste) | any position | Oscilloscope and Oscillator | EJ P.C.B. | VR2 | IC40-① pin | Photo-A |
|  | 1. Connect the oscilloscope to IC40-① pin of EJ circuit board.<br>2. Input 1kHz sine wave to IC34-③ pin by oscillator through capacitor of less than 50V 1μF. Then, adjust the output level of oscillator until the sinewave on the oscilloscope is clipped.<br>3. Adjust VR2 so that the output waveforms on the oscilloscope are evenly clipped at top and bottom. |  |  |  |  |  |

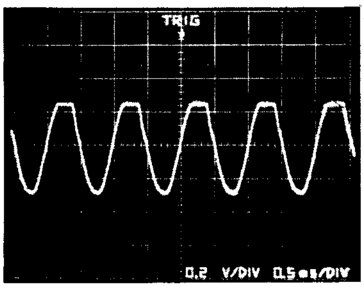
**BBD bias adjustment**

○: Good

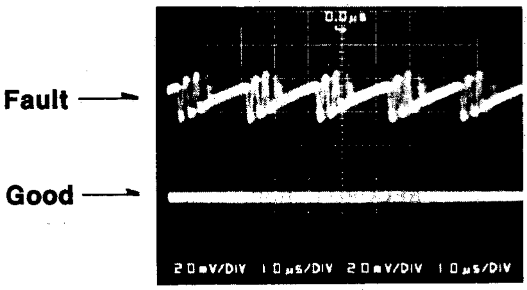


[Photo-A]

× : Fault



[Photo-B]

| ADJUSTMENT | MEASURING CONDITIONS | EQUIPMENT | ADJUSTMENT P.C.B. | ADJ. POINT | CONNECT METER TO | METER READING |
|---|---|---|---|---|---|---|
| DRV bias | any position | Oscilloscope | DRV P.C.B. | VR2 | Check point ❷ | Photo-C |
|  | 1. Connect the oscilloscope to check point ❷ of DRV circuit board.<br>2. Adjust VR2 so that the output level on the oscilloscope are minimum level as shown in Photo-C. |  |  |  |  |  |
|  |  [Photo-C] |  |  |  |  |  |

# SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE

The following changes in performance may occur in the Technics organ but do not indicate trouble:

| Phenomenon | Remedy |
|---|---|
| A rhythm does not start or no rhythm sounds. | •No rhythm sounds if the **DRUMS BALANCE** buttons are off.<br>•If the **PCC** button has no stored chords, no rhythm will start when turned on.<br>•If the selected **COMPOSER** button has no stored rhythm patterns, no rhythm will sound. Select a **COMPOSER** button with a stored rhythm. |
| Rhythm **TEMPO/PROGRAM** control is inoperative. | When the **TEMPO SET** button is turned on:<br>•The **TEMPO/PROGRAM** control does not operate if the **FINE** button is turned off.<br>•If the **FINE** button is turned on, fine adjustment is possible with the **TEMPO/PROGRAM** control. Press **TEMPO SET** buttons **1** and **2** simultaneously to turn them off. This allows the rhythm tempo to be adjusted with the **TEMPO/PROGRAM** control. |
| The knee lever, foot switch(es) and full bass pedal (GX5/GX7) do not operate properly. For example, the knee lever does not turn the sustain function on and off. | Any functional on and off operation other than the factory presets are storable in these switches. For example, the knee lever can turn the **TECHNI-CHORD** on and off. Store your favorite functions to turn them on and off. |
| The **FAST TREMOLO** speed is improper. | The **FAST TREMOLO** speed is preadjustable. Adjust to your favorite speed. ( Musical Director, MIDI & CONTROL Mode.) |
| The contents of the **PROGRAM CHORD COMPUTER**, **COMPOSER**, etc. cannot be stored. | After pressing the **RECORD** button, press the necessary buttons within 5 seconds. The **RECORD** button turns off after a lapse of 5 seconds, making storage operation impossible. Press the **RECORD** button again. |
| Storage is not possible with the **PROGRAM CHORD COMPUTER**. | •Check that the **PCC** indicator is slowly flashing. Pressing the **FINGERED** button turns off the **RECORD** button, making storage operation impossible.<br>•Do not release the left hand (chord designation) before pressing the measure keys ( ⊢⌒⊣ , ⊢⌒┼⊣ and ⊢┼┼⊣ ). |
| When the rhythm stored in the **COMPOSER** is played, the **ACCOMPANY** and automatic bass accompaniment do not sound. | •Store patterns using the **RHYTHMIC** and **MELODIC** keys, just as you would with other rhythmic instrumental effects.<br>•The bass of the Auto Play Chord sounds with a bass drum, which should be stored. |
| A rhythm pattern cannot be stored in the **COMPOSER** with the real-time mode. | The real-time metronome must be turned on to enable storage of a rhythm in the real-time mode. If the metronome cannot be heard, press the **START/STOP** button to start it. |
| The Digital Disk Recorder produces a noise during storage or automatic performance. | This occurs when the Digital Disk Recorder searches for a storage location. It does not indicate a problem. |
| The rhythm and melody do not coincide during automatic performance when using the Digital Disk Recorder. | This occurs when the automatic performance is started before the selected number appears on the **MUSICAL DISPLAY** after the **FSC** button has been pressed and the song has been selected by pressing a white numbered key on the upper keyboard. Be sure to wait for the selected number to appear. |
| The stored introduction is not reproduced during automatic performance. | •Set the beginning of a song, such as an introduction, before turning on the **RECORD** button.<br>•To add an introduction after the **RECORD** indicator and **PLAY SEQUENCER** indicator flash, set it after turning on the **FSC** button. Then turn off the **FSC** button. |

| Phenomenon | Remedy |
|---|---|
| No storage is possible even when the **RECORD** indicator and **PLAY SEQUENCER** indicator are slowly flashing. | •No storage is possible when the **FSC** button is turned on. Turn it off before playing.<br>•If any **PLAY SEQUENCER** indicator is lit, press the **START/STOP** button for automatic performance of the stored part. Another part can then be stored. |
| The quick rhythm tempo is delayed when the **PLAY SEQUENCER** is used. | This occurs when too many notes are played at one time.<br>Slow down the tempo (to about ♩=250) or reduce the number of notes played at a time. |
| Different voices and effects are stored in the **FULLBAND SETTING COMPUTER** (**FSC**) or in the Digital Disk Recorder. | If the **VOICE SETTING COMPUTER** function is selected, the stored contents in this button are stored in the **FULLBAND SETTING COMPUTER** or in the Digital Disk Recorder.<br>When the voices and effects selected by the **VOICE SETTING COMPUTER** are changed, store them in the **VOICE SETTING COMPUTER** again before storage in the **FULLBAND SETTING COMPUTER** or in the Digital Disk Recorder. |
| The cabinet and slide cover become heated to some degree. | The Technics organ has a built-in power source that heats the cabinet and slide cover to some degree. This is not an indication of trouble. |
| The buttons, keyboards, etc. malfunction. | •Press the **FSC** button first to turn it on and then press the **INITIAL** key on the upper keyboard.<br>•If the buttons, keyboards, etc. do not return to normal, turn the **POWER** switch off once, then turn on again. |
| | |

# ERROR DISPLAY

When using the Digital Disk Recorder or the organ's internal memory (GX3/GX5) and an error ( Err ) is indicated on the **MUSICAL DISPLAY**, the number following indicates the type of error.

| Error No. | Problem | Cause |
|---|---|---|
| Nothing appears on the display. | The memory disk format is different (when recording). | The disk used is not a normal mode or professional mode disk. Initialize the disk. |
| 1 | The mode change function of the Digital Disk Recorder does not work (when **RECORD** → **FSC** → **INITIAL** is pressed). | •No memory disk is inserted.<br>•The memory disk is write-protected. |
| 2 | Data transmission error when loading from or saving on a memory disk. | An error occurred during data transmission with the memory disk. Perform the loading or saving procedure once again. |
| 3 | Recording in or playing back from the organ's internal memory is unsuccessful (GX3/GX5). | The memory track number specified is not correct. Specify **1~5**. |
| 5 | Loading or saving on a memory disk is unsuccessful. | •The memory track number is not correct. In the professional mode, specify **1**; in the normal mode, specify **1~20**.<br>•No memory disk is inserted.<br>•The memory disk is write-protected (when recording). |

When the memory disk is not correctly inserted, an error will be indicated. Remove the memory disk and insert it correctly.

# MIDI Implementation Chart

Technics Organ
[ SX-GX3/SX-GX5/SX-GX7 ] (Transmitted)

| Function... | | upper | lower | bass | solo | Remarks |
|---|---|---|---|---|---|---|
| **Basic Channel** | Default<br>Changed | 1~16<br>1~16 | 1~16<br>1~16 | 1~16<br>1~16 | 1~16<br>1~16 | memorized |
| **Mode** | Default<br>Messages<br>Altered | 3<br>×<br>—— | 3<br>×<br>—— | 3<br>×<br>—— | 3<br>×<br>—— | |
| **Note Number** | True voice | 12~127<br>—— | 0~120<br>—— | 0~108<br>—— | 12~127<br>—— | Including the use of Octave Shift |
| **Velocity** | Note ON<br>Note OFF | ×<br>× (9nH:V=0) | ×<br>× (9nH:V=0) | ×<br>× (9nH:V=0) | ×<br>× (9nH:V=0) | |
| **After Touch** | Key's<br>Ch's | ×<br>× | ×<br>× | ×<br>× | ×<br>× | |
| **Pitch Bender** | | × | × | × | × | |
| **Control Change** | 64 | *○ × | *○ × | × | × | sustain |
| | 93 | *○ × | *○ × | × | × | chorus (GX5/GX7) |
| | 94 | *○ × | *○ × | × | × | celeste |
| **Prog Change** | True # | *○ (0~11) ×<br>*○ (0~15) ×<br>*○ (0~17) ×<br>—— | *○ (0~9) ×<br>*○ (0~15) ×<br>*○ (0~17) ×<br>—— | *○ (0~7) ×<br>*○ (0~9) ×<br>*○ (0~11) ×<br>—— | *○ (0~7) ×<br>*○ (0~11) ×<br>*○ (0~13) ×<br>—— | (GX3)<br>(GX5)<br>(GX7) |
| **System Exclusive** | | × | | | | |
| **System Common** | Song Pos<br>Song Sel<br>Tune | ×<br>*○ (0~19) ×<br>× | | | | |
| **System Real Time** | Clock<br>Commands | ○<br>*○ × | | | | start/stop |
| **Aux Messages** | Local ON/OFF | × | × | × | × | |
| | All Notes OFF | ○ | ○ | ○ | ○ | |
| | Active Sense | ○ | | | | |
| | Reset | × | | | | |
| **Notes** | | *○ ×.......... Whether or not the data for each of these items is transmitted can be set.<br>**Including the use of Full Bass Pedal (GX5/GX7). | | | | |

**Mode 1:** OMNI ON, POLY **Mode 2:** OMNI ON, MONO ○ : Yes
**Mode 3:** OMNI OFF, POLY **Mode 4:** OMNI OFF, MONO × : No

---

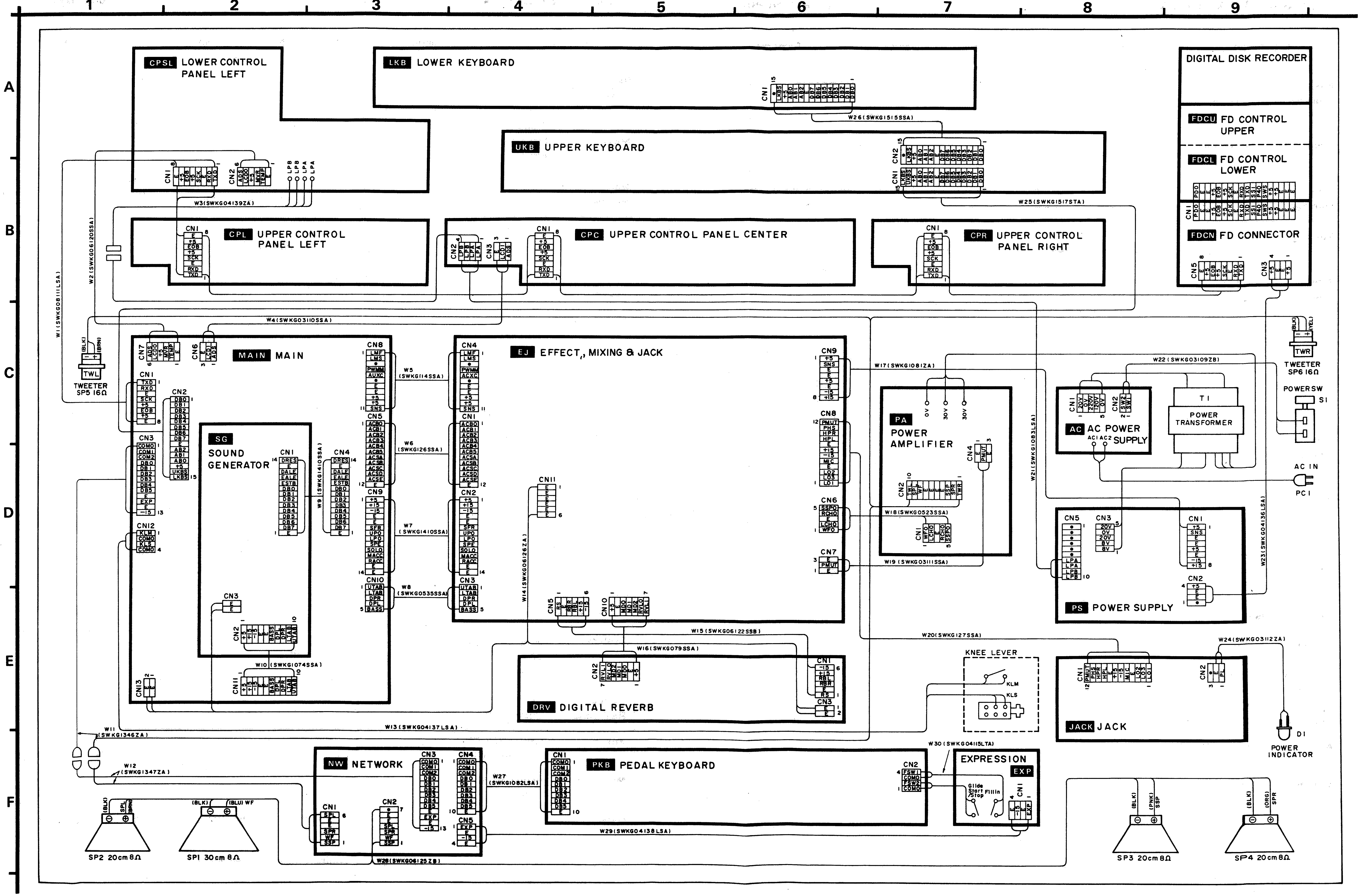
# MIDI Implementation Chart

Technics Organ
[ SX-GX3/SX-GX5/SX-GX7 ] (Recognized)

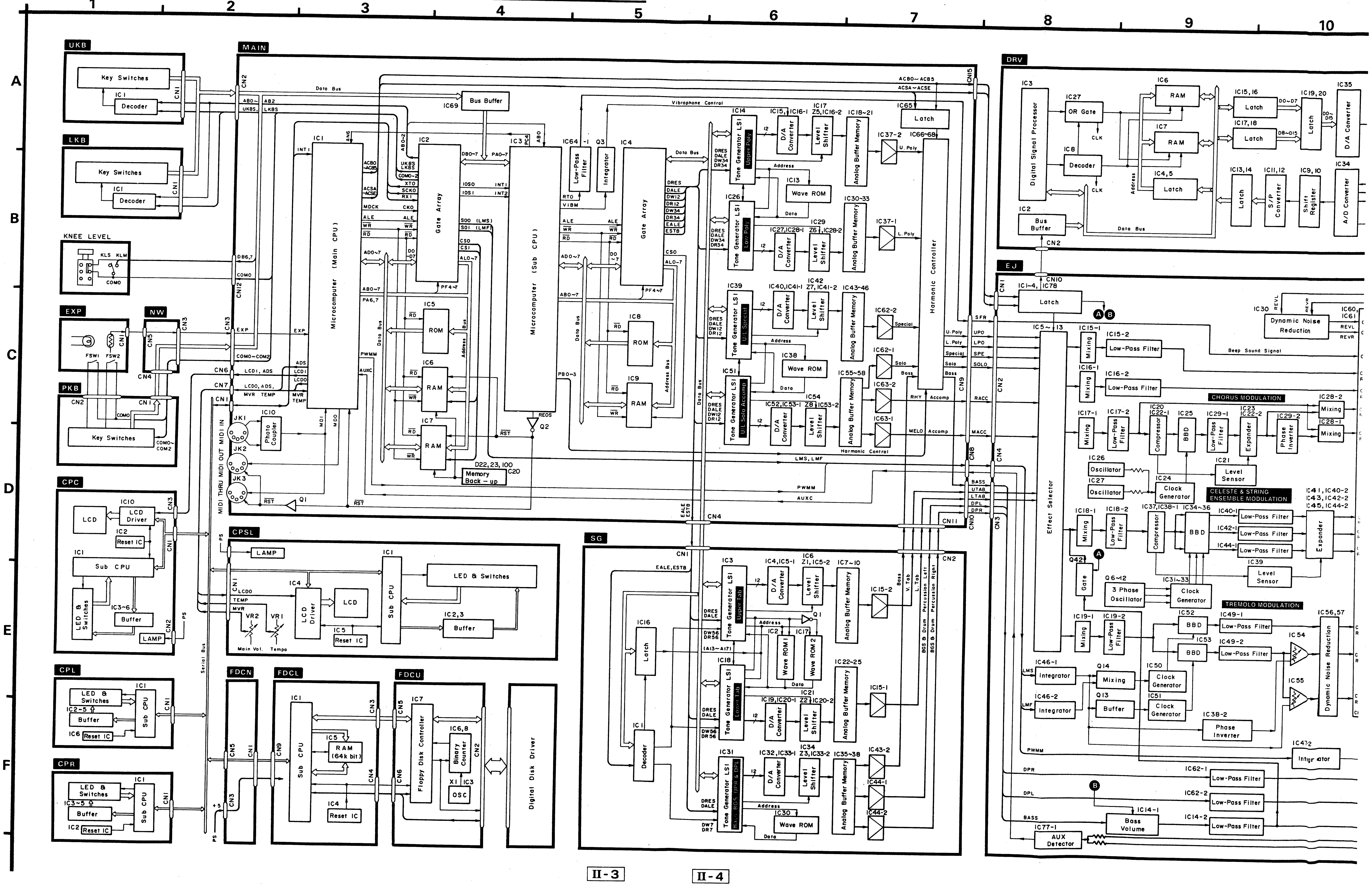
| Function... | | upper | lower | bass | solo | Remarks |
|---|---|---|---|---|---|---|
| **Basic Channel** | Default<br>Changed | 1~16<br>1~16 | 1~16<br>1~16 | 1~16<br>1~16 | 1~16<br>1~16 | memorized |
| **Mode** | Default<br>Messages<br>Altered | 3<br>×<br>—— | 3<br>×<br>—— | 3<br>×<br>—— | 3<br>×<br>—— | OMNI OFF POLY Mode |
| **Note Number** | True voice | 0~127<br>**36~127 | 0~127<br>**24~119 | 0~127<br>**24~119 | 0~127<br>**36~127 | Changes depending on the position of the Transpose or Octave Shift. |
| **Velocity** | Note ON<br>Note OFF | ×<br>× (9nH:V=0) | ×<br>× (9nH:V=0) | ×<br>× (9nH:V=0) | ×<br>× (9nH:V=0) | |
| **After Touch** | Key's<br>Ch's | ×<br>× | ×<br>× | ×<br>× | ×<br>× | |
| **Pitch Bender** | | × | × | × | × | |
| **Control Change** | 64 | *○ × | *○ × | × | × | sustain |
| | 93 | *○ × | *○ × | × | × | chorus (GX5/GX7) |
| | 94 | *○ × | *○ × | × | × | celeste |
| **Prog Change** | True # | *○ (0~7) ×<br>*○ (0~7) ×<br>*○ (0~7) ×<br>0~7<br>0~7<br>0~7 | × | *○ (0~7) ×<br>*○ (0~9) ×<br>*○ (0~11) ×<br>0~7<br>0~9<br>0~11 | *○ (0~7) ×<br>*○ (0~11) ×<br>*○ (0~13) ×<br>0~7<br>0~11<br>0~13 | (GX3)<br>(GX5)<br>(GX7)<br>(GX3)<br>(GX5)<br>(GX7) |
| **System Exclusive** | | × | | | | |
| **System Common** | Song Pos<br>Song Sel<br>Tune | ×<br>*○ (0~19) ×<br>× | | | | |
| **System Real Time** | Clock<br>Commands | ○<br>*○ × | | | | |
| **Aux Messages** | Local ON/OFF | × | × | × | × | |
| | All Notes OFF | ○ | ○ | ○ | ○ | (123~127) |
| | Active Sense | ○ | | | | |
| | Reset | × | | | | |
| **Notes** | | *○ ×.......... Whether or not the data for each of these items is received can be set.<br>**Changes depending on the selected voice. | | | | |

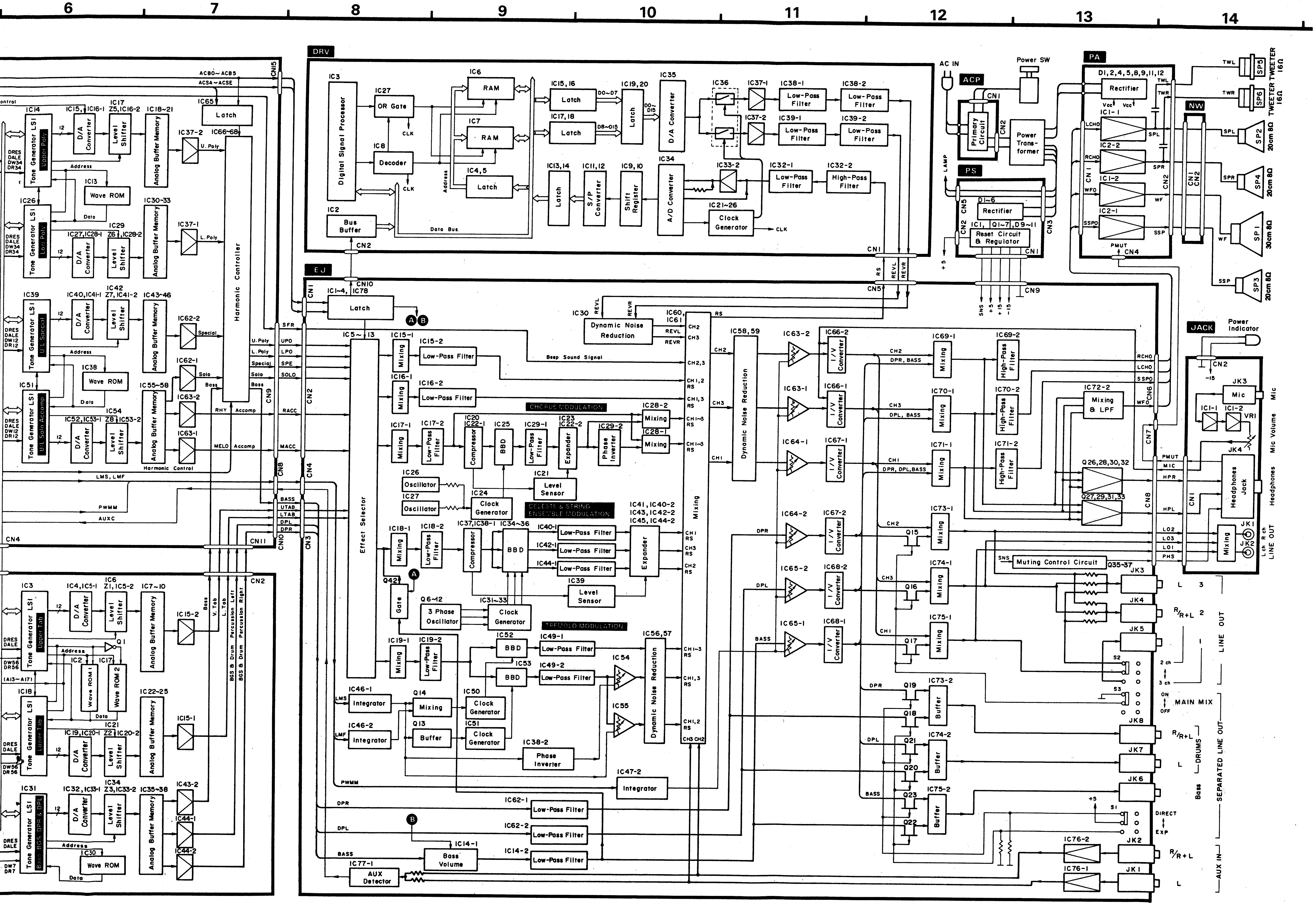
**Mode 1:** OMNI ON, POLY **Mode 2:** OMNI ON, MONO ○ : Yes
**Mode 3:** OMNI OFF, POLY **Mode 4:** OMNI OFF, MONO × : No

# WIRING CONNECTION DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
CPSL LOWER CONTROL PANEL LEFT
LKB LOWER KEYBOARD
DIGITAL DISK RECORDER
FDCU FD CONTROL UPPER
FDCL FD CONTROL LOWER
FDCN FD CONNECTOR
UKB UPPER KEYBOARD
CPL UPPER CONTROL PANEL LEFT
CPC UPPER CONTROL PANEL CENTER
CPR UPPER CONTROL PANEL RIGHT
MAIN MAIN
SG SOUND GENERATOR
EJ EFFECT, MIXING & JACK
PA POWER AMPLIFIER
AC AC POWER SUPPLY
T1 POWER TRANSFORMER
PS POWER SUPPLY
DRV DIGITAL REVERB
JACK JACK
NW NETWORK
PKB PEDAL KEYBOARD
EXPRESSION EXP
KNEE LEVER
KLM
KLS
Glide Start Fillin /Stop
TWL TWEETER SP5 16Ω
TWR TWEETER SP6 16Ω
POWER SW S1
AC IN PC1
D1 POWER INDICATOR
SP2 20cm 8Ω
SP1 30cm 8Ω
SP3 20cm 8Ω
SP4 20cm 8Ω
W1 (SWKG0811LSA)
W2 (SWKG06120SSA)
W3 (SWKG04139ZA)
W4 (SWKG03110SSA)
W5 (SWKG114SSA)
W6 (SWKG126SSA)
W7 (SWKG1410SSA)
W8 (SWKG0535SSA)
W9 (SWKG1410SSA)
W10 (SWKG1074SSA)
W11 (SWKG1346ZA)
W12 (SWKG1347ZA)
W13 (SWKG04137LSA)
W14 (SWKG06126ZA)
W15 (SWKG06122SSB)
W16 (SWKG079SSA)
W17 (SWKG1081ZA)
W18 (SWKG0523SSA)
W19 (SWKG03111SSA)
W20 (SWKG127SSA)
W21 (SWKG1083LSA)
W22 (SWKG03109ZB)
W23 (SWKG04136LSA)
W24 (SWKG03112ZA)
W25 (SWKG1517STA)
W26 (SWKG1515SSA)
W27 (SWKG1082LSA)
W28 (SWKG06125ZB)
W29 (SWKG04138LSA)
W30 (SWKG04115LTA)
(BLK)
(BRN)
(YEL)
(BLU) WF
(PNK) SSP
(ORG) SPR

# TOTAL BLOCK DIAGRAM

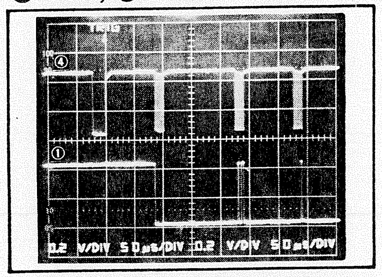

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
UKB
Key Switches
IC1
Decoder
CN1
LKB
KNEE LEVEL
KLS
KLM
COMO
EXP
FSW1
FSW2
NW
CN3
CN5
CN4
PKB
CN2
COMO~COM2
CPC
LCD
IC10
LCD Driver
IC2
Reset IC
Sub CPU
LED & Switches
IC3~6
Buffer
LAMP
CPL
IC2~5
IC6
CPR
IC3~5
Serial Bus
PS
MAIN
Data Bus
IC69
Bus Buffer
Microcomputer (Main CPU)
Gate Array
Microcomputer (Sub CPU)
IC5
ROM
IC6
RAM
IC7
IC3
Q2
Memory Back-up
D22, 23, 100
C20
IC64-1
Low-Pass Filter
Q3
Integrator
IC4
IC8
IC9
Vibraphone Control
JK1
JK2
JK3
Photo Coupler
MIDI THRU
MIDI OUT
MIDI IN
Q1
CPSL
VR2
VR1
Main Vol.
Tempo
LCD Driver
IC2,3
FDCN
FDCL
FDCU
RAM (64k bit)
Reset IC
Floppy Disk Controller
IC6,8
Binary Counter
X1
OSC
Digital Disk Driver
IC14
Tone Generator LSI
Upper Poly
IC26
Lower Poly
IC39
U/L Special
IC51
U/L Solo Accomp
D/A Converter
Level Shifter
Analog Buffer Memory
IC13
Wave ROM
IC38
IC65
Latch
IC66~68
Harmonic Controller
Harmonic Control
U. Poly
L. Poly
Special
Solo
Bass
RHY Accomp
MELO Accomp
LMS, LMF
PWMM
AUXC
CN4
CN15
SG
IC16
Decoder
IC3
Upper Tab
IC18
Lower Tab
IC31
Bass, BGS, DPR & DPL
Wave ROM1
Wave ROM2
IC30
Bass
V. Tab
L. Tab
BGS & Drum
Percussion Left
Percussion Right
DRV
Digital Signal Processor
IC27
OR Gate
IC8
IC6
RAM
IC7
IC4,5
Latch
IC15,16
IC17,18
IC19,20
IC35
D/A Converter
IC13,14
IC11,12
S/P Converter
IC9,10
Shift Register
IC34
A/D Converter
Bus Buffer
EJ
IC1~4, IC78
CN10
IC30
Dynamic Noise Reduction
Beep Sound Signal
IC5~13
Effect Selector
Mixing
Low-Pass Filter
CHORUS MODULATION
Compressor
BBD
Expander
Phase Inverter
Oscillator
Clock Generator
Level Sensor
CELESTE & STRING ENSEMBLE MODULATION
Gate
Q42
3 Phase Oscillator
TREMOLO MODULATION
IC54
IC55
IC56,57
Dynamic Noise Reduction
IC46-1
Integrator
IC46-2
Q14
Q13
Buffer
IC38-2
IC47-2
Integrator
IC62-1
IC62-2
IC14-1
Bass Volume
IC14-2
IC77-1
AUX Detector


6
7
8
9
10
11
12
13
14
DRV
Digital Signal Processor
OR Gate
Decoder
RAM
Latch
Bus Buffer
Data Bus
D/A Converter
A/D Converter
S/P Converter
Shift Register
Clock Generator
Low-Pass Filter
High-Pass Filter
EJ
Harmonic Controller
Tone Generator LSI
Upper Poly
Lower Poly
U/L Special
U/L Solo Accomp
Upper Tab
Lower Tab
Bass BGS DPR & DPL
Level Shifter
Analog Buffer Memory
Wave ROM
Wave ROM 1
Wave ROM 2
Effect Selector
Mixing
Compressor
BBD
Expander
Phase Inverter
Level Sensor
Oscillator
3 Phase Oscillator
Gate
CHORUS MODULATION
CELESTE & STRING ENSEMBLE MODULATION
TREMOLO MODULATION
Integrator
Buffer
Dynamic Noise Reduction
Beep Sound Signal
I/V Converter
Mixing & LPF
Muting Control Circuit
Bass Volume
AUX Detector
AC IN
Power SW
ACP
Primary Circuit
Power Trans-former
PS
Rectifier
Reset Circuit & Regulator
PA
NW
TWEETER 16Ω
20cm 8Ω
30cm 8Ω
JACK
Power Indicator
Mic
Mic Volume
Headphones Jack
LINE OUT
MAIN MIX
DRUMS
Bass
SEPARATED LINE OUT
DIRECT
EXP
AUX IN
L
R/R+L
ON
OFF
2 ch
3 ch

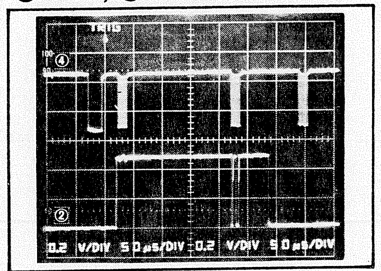
# MAIN

## MAIN CIRCUIT BOARD

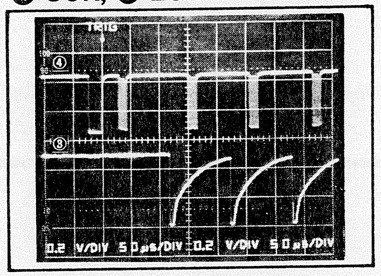
④ SCK, ① TXD



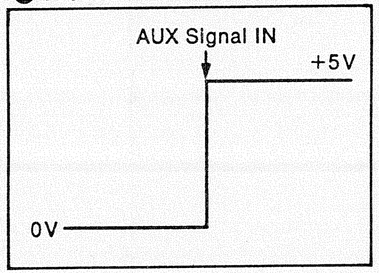
④ SCK, ② RXD



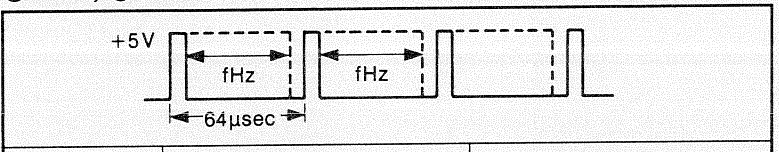
④ SCK, ③ EOB



⑦ AUXC

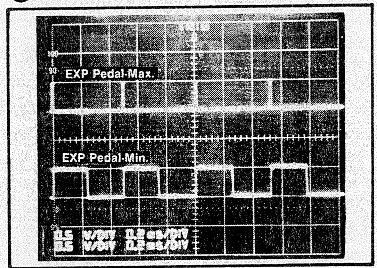

AUX Signal IN
+5V
0V

⑤ LMF, ⑥ LMS


+5V
fHz
fHz
64µsec

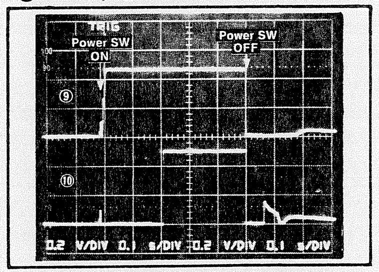
| | Tremolo slow | Tremolo Fast |
|---|---|---|
| ⑤ LMF | 1 Hz | 8.4 Hz~30.5 Hz |
| ⑥ LMS | 0.5 Hz | 4.9 Hz~8.1 Hz |

⑧ PWMM

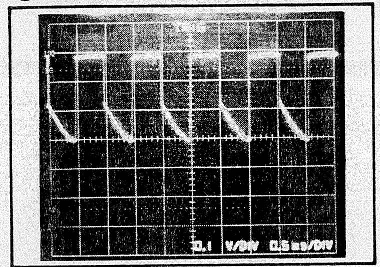


- Main Volume......................Max.
- Upper Key..........................ON

⑨ NMI, ⑩ RST

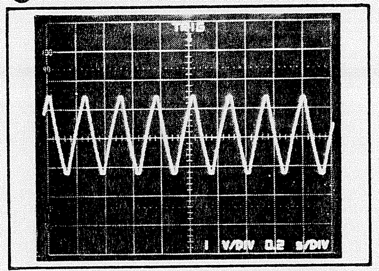


⑪ RTO



- Record ...............................ON
- Composer 1.........................ON
- Upper Key...........................ON

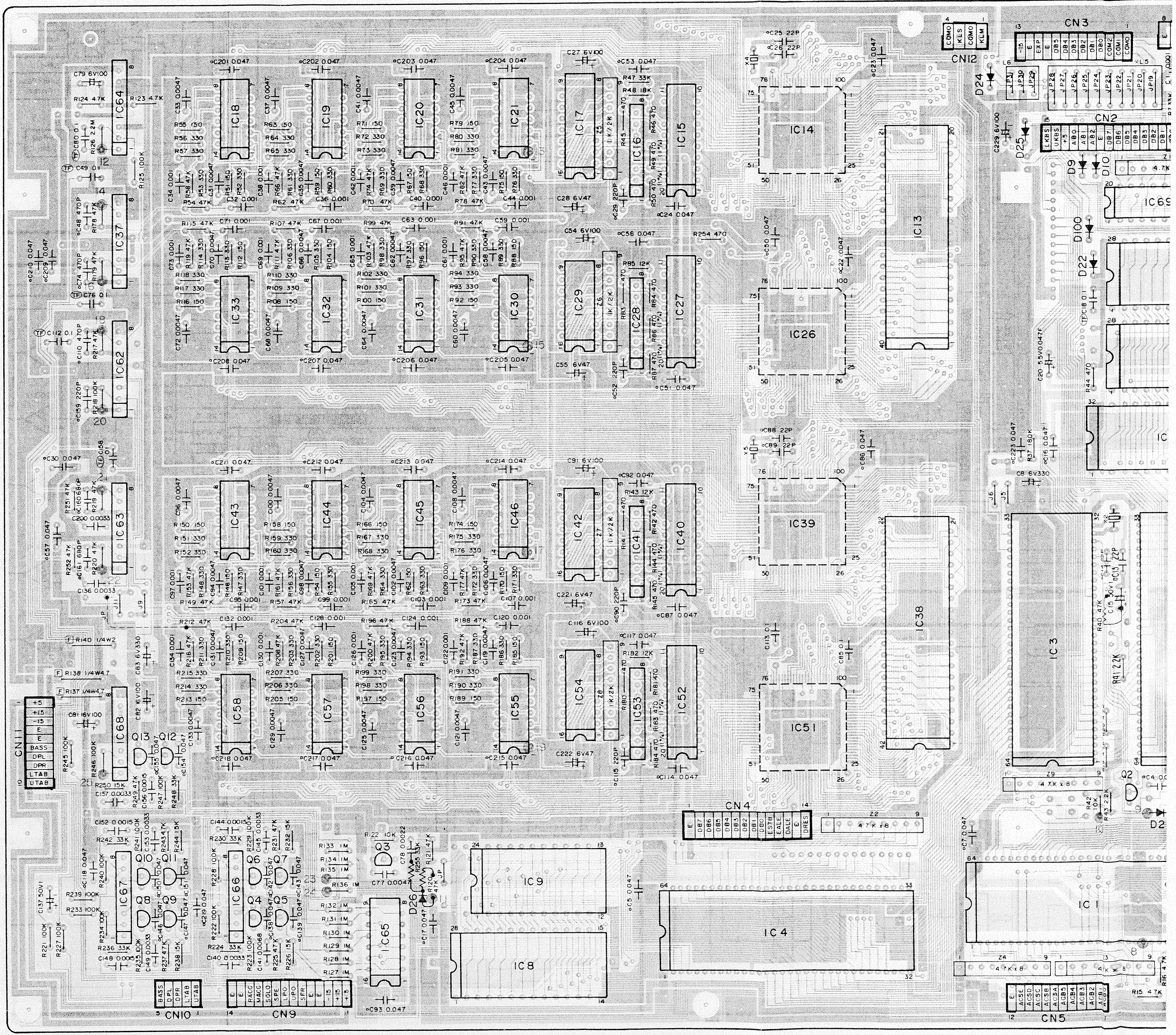
⑫



- U. Poly ..............................Vibraphone

Circuit view on top of P.C.B.

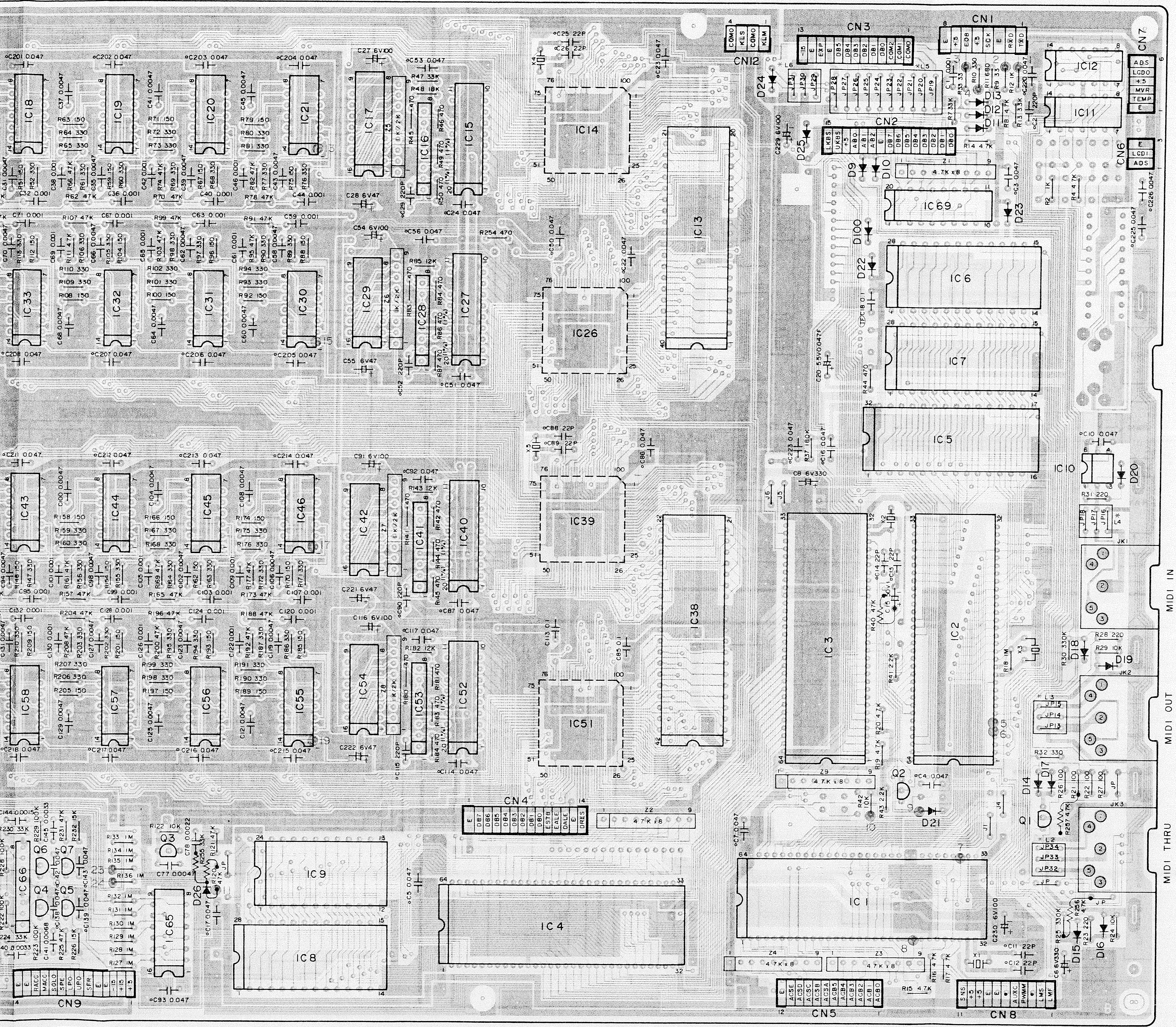
• [M], [MC] and [EZ] areas **SXPG140241** • C


CN1
CN2
CN3
CN4
CN5
CN9
CN10
CN11
CN12
IC1
IC3
IC4
IC8
IC9
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC26
IC27
IC28
IC29
IC30
IC31
IC32
IC33
IC37
IC38
IC39
IC40
IC41
IC42
IC43
IC44
IC45
IC46
IC51
IC52
IC53
IC54
IC55
IC56
IC57
IC58
IC62
IC63
IC64
IC65
IC66
IC67
IC68
IC69
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q12
Q13
D9
D10
D22
D24
D25
D26
D100

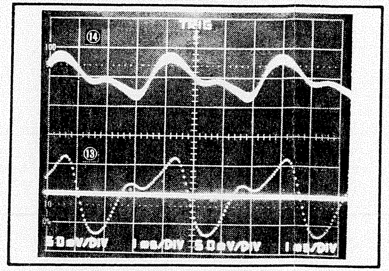
5 6 7 8 9 10 11 12 13 14

## op of P.C.B.

• [M], [MC] and [EZ] areas **SXPG140241** • Other areas **SXPG140211**

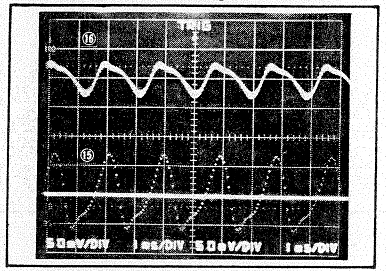

IC18
IC19
IC20
IC21
IC17
IC16
IC15
IC14
IC13
IC33
IC32
IC31
IC30
IC29
IC28
IC27
IC26
IC43
IC44
IC45
IC46
IC42
IC41
IC40
IC39
IC38
IC58
IC57
IC56
IC55
IC54
IC53
IC52
IC51
IC66
IC65
IC9
IC8
IC4
IC3
IC2
IC1
IC5
IC6
IC7
IC69
IC10
IC11
IC12
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN12
MIDI IN
MIDI OUT
MIDI THRU
JK1
JK2
JK3
Q1
Q2
Q3
Q4
Q5
Q6
Q7
D9
D10
D11
D12
D13
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23
D24
D25
D26
D100
X1
X2
X3
X4

### ⑬, ⑭ Upper Poly



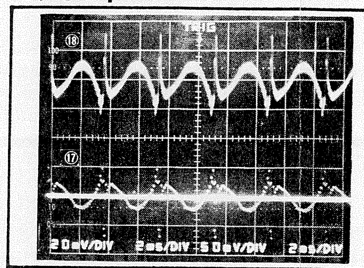
- U. Poly...French Horn • Upper Key...C4
- Poly Volume........................Max.
- Harmonic Control..............Normal

### ⑮, ⑯ Lower Poly



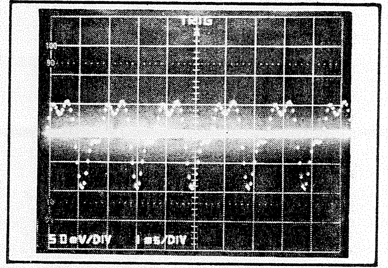
- L. Poly...French Horn • Lower Key...C4
- Poly Volume........................Max.
- Harmonic Control..............Normal

### ⑰, ⑱ Special



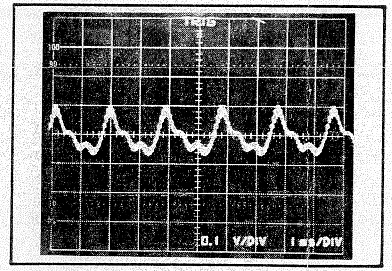
- U. Special ...........................Synth Brass
- Upper Key...C4 • Special Vol....Max.
- Harmonic Control..............Normal

### ⑲ Solo



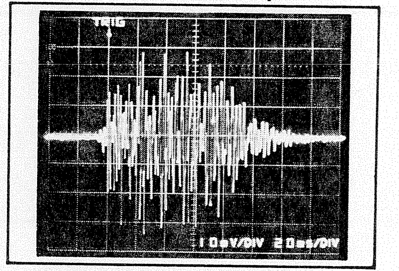
- U. Solo...Flute • Upper Key...C4
- Solo Volume........................Max.
- Harmonic Control..............Normal

### ⑳ Solo



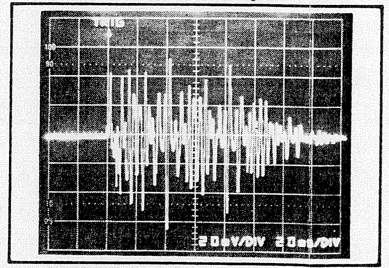
- U. Solo...Flute • Upper Key...C4
- Solo Volume........................Max.
- Harmonic Control..............Normal

### ㉑ Rhythmic Accomp



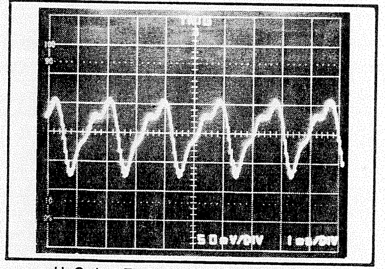
- Rhythm ...........................8 beat 2 (Acoustic)
- Fingered...ON • Lower Key...C4
- Accomp Balance ................Max.

### ㉒ Melodic Accomp



- Rhythm ...........................8 beat 2 (Acoustic)
- Fingered...ON • Lower Key...C4
- Accomp Balance ................Max.

### ㉕



- U. Solo...Flute • Upper Key...C4
- Solo Volume........................Max.
- Harmonic Control..............Normal

### ㉓, ㉔

• Harmonic Control

| —— | Bright | Normal | Mellow |
|---|---|---|---|
| ㉓ SLHN | +5V (H) | 0V (L) | +5V (H) |
| ㉔ SLHS | +5V (H) | +5V (H) | 0V (L) |

# MAIN CIRCUIT DIAGRAM

**NOTES:**

- IC'S

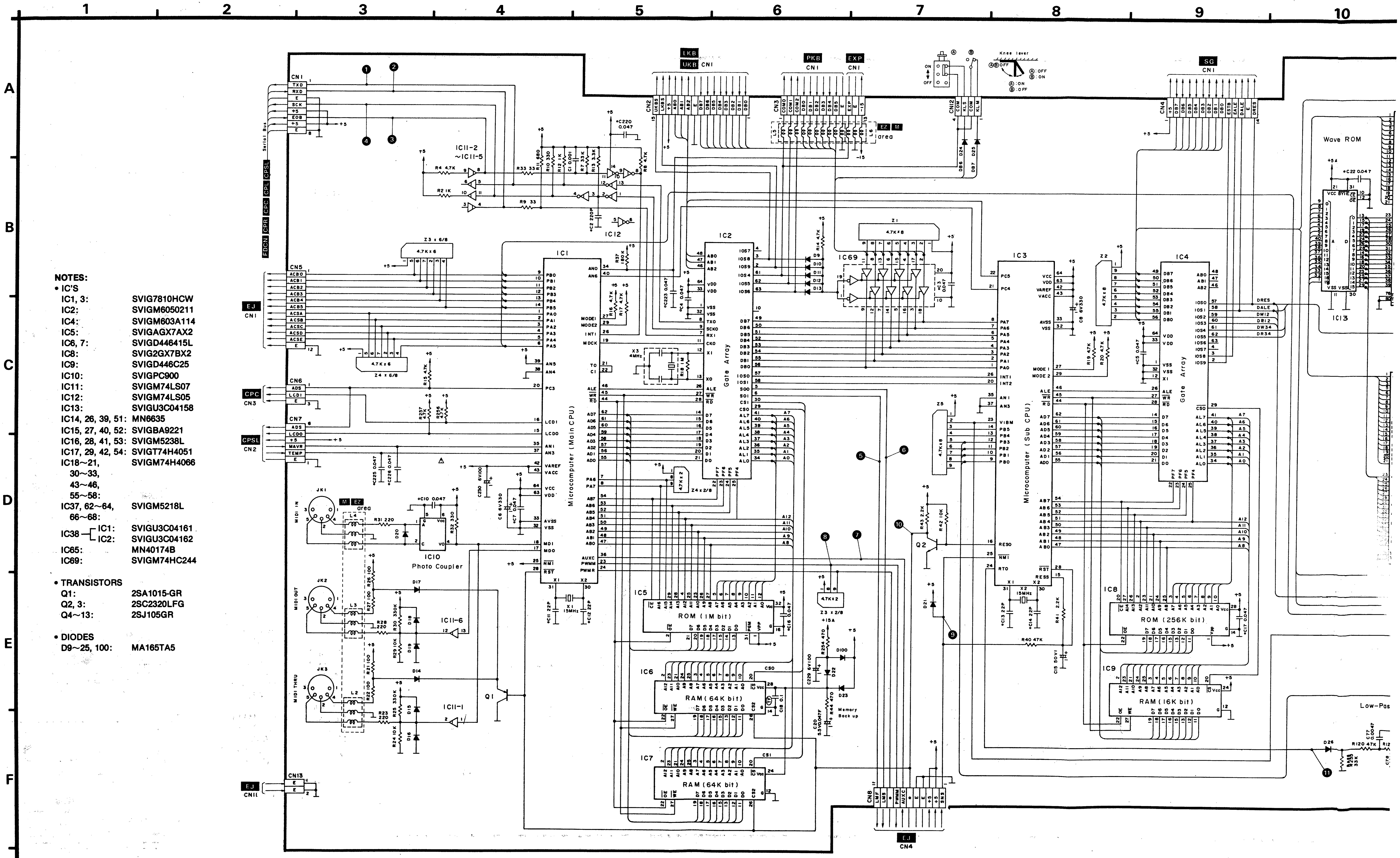
| | |
|---|---|
| IC1, 3: | SVIG7810HCW |
| IC2: | SVIGM6050211 |
| IC4: | SVIGM603A114 |
| IC5: | SVIGAGX7AX2 |
| IC6, 7: | SVIGD446415L |
| IC8: | SVIG2GX7BX2 |
| IC9: | SVIGD446C25 |
| IC10: | SVIGPC900 |
| IC11: | SVIGM74LS07 |
| IC12: | SVIGM74LS05 |
| IC13: | SVIGU3C04158 |
| IC14, 26, 39, 51: | MN6635 |
| IC15, 27, 40, 52: | SVIGBA9221 |
| IC16, 28, 41, 53: | SVIGM5238L |
| IC17, 29, 42, 54: | SVIGT74H4051 |
| IC18~21, 30~33, 43~46, 55~58: | SVIGM74H4066 |
| IC37, 62~64, 66~68: | SVIGM5218L |
| IC38 — IC1: | SVIGU3C04161 |
| IC38 — IC2: | SVIGU3C04162 |
| IC65: | MN40174B |
| IC69: | SVIGM74HC244 |

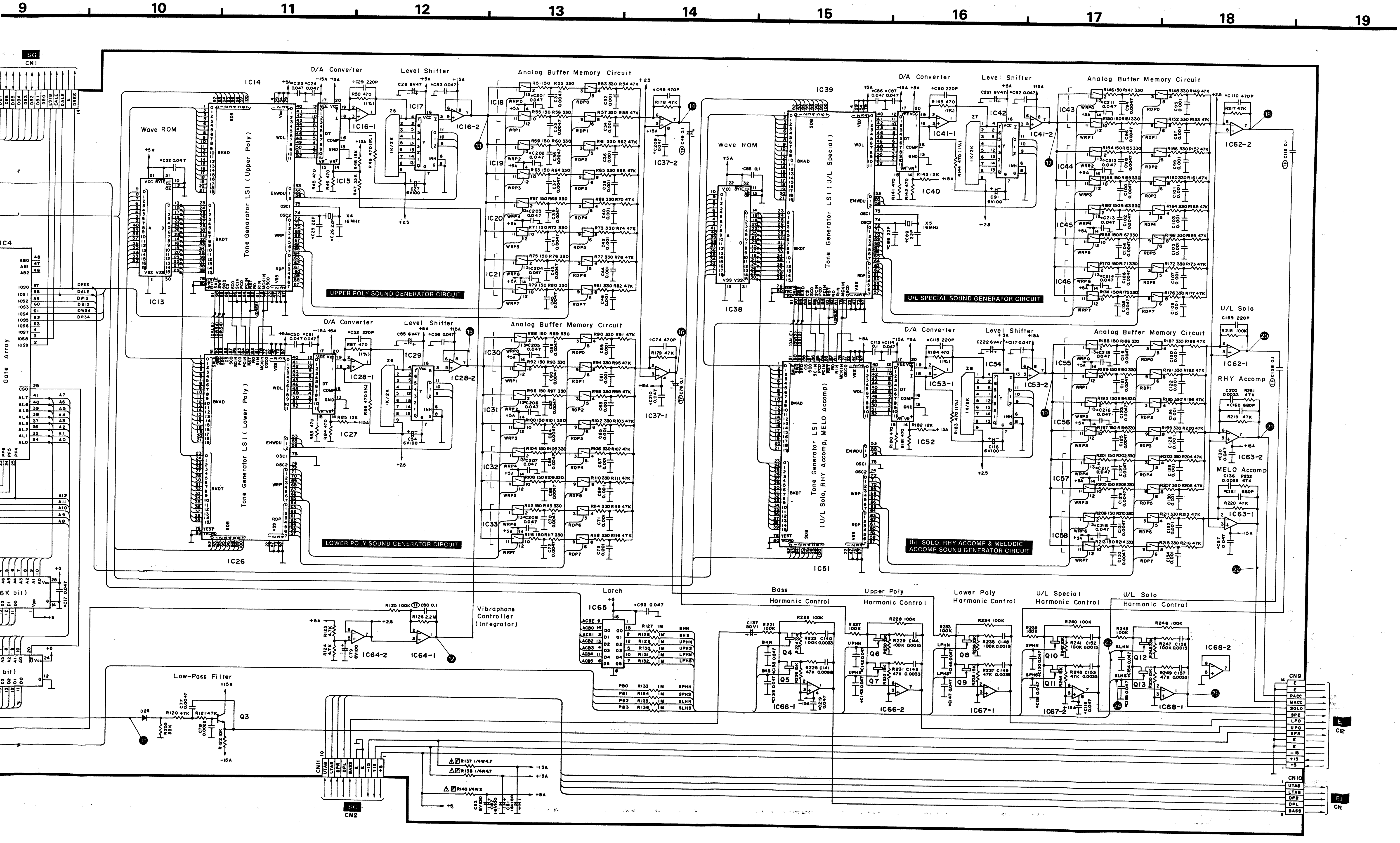
- TRANSISTORS

| | |
|---|---|
| Q1: | 2SA1015-GR |
| Q2, 3: | 2SC2320LFG |
| Q4~13: | 2SJ105GR |

- DIODES

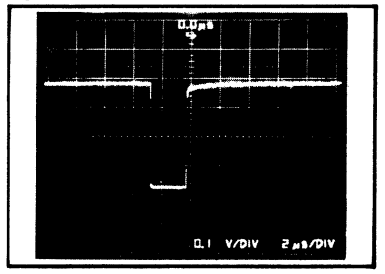
| | |
|---|---|
| D9~25, 100: | MA165TA5 |


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
LKB
UKB
PKB
EXP
SG
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN11
CN12
CN13
EJ
CPC
CPSL
CPL
CPR
FDCN
Serial Bus
TXD
RXD
SCK
EOB
IC1
Microcomputer (Main CPU)
IC2
Gate Array
IC3
Microcomputer (Sub CPU)
IC4
Gate Array
IC5
ROM (1M bit)
IC6
RAM (64K bit)
IC7
RAM (64K bit)
IC8
ROM (256K bit)
IC9
RAM (16K bit)
IC10
Photo Coupler
IC11-2 ~IC11-5
IC11-6
IC11-1
IC12
IC13
Wave ROM
IC69
Z1
Z2
Z3 x 6/8
Z4 x 6/8
Z5
4.7K x 6
4.7K x 8
X1 15MHz
X2 15MHz
X3 4MHz
JK1
MIDI IN
JK2
MIDI OUT
JK3
MIDI THRU
M EZ area
EZ M area
Q1
Q2
Knee lever
Ⓐ:OFF Ⓑ:ON
Ⓐ:ON Ⓑ:OFF
Memory Back up
Low-Pas


9
10
11
12
13
14
15
16
17
18
19
SG CN1
IC14
IC13
Wave ROM
Tone Generator LSI (Upper Poly)
D/A Converter
Level Shifter
Analog Buffer Memory Circuit
IC15
IC16-1
IC16-2
IC17
IC18
IC19
IC20
IC21
IC37-2
UPPER POLY SOUND GENERATOR CIRCUIT
X4 16MHz
IC26
Tone Generator LSI (Lower Poly)
IC27
IC28-1
IC28-2
IC29
IC30
IC31
IC32
IC33
IC37-1
LOWER POLY SOUND GENERATOR CIRCUIT
IC39
IC38
Tone Generator LSI (U/L Special)
IC40
IC41-1
IC41-2
IC42
IC43
IC44
IC45
IC46
IC62-2
U/L SPECIAL SOUND GENERATOR CIRCUIT
X5 16MHz
IC51
Tone Generator LSI (U/L Solo, RHY Accomp, MELO Accomp)
IC52
IC53-1
IC53-2
IC54
IC55
IC56
IC57
IC58
U/L Solo
IC62-1
RHY Accomp
IC63-2
MELO Accomp
IC63-1
U/L SOLO, RHY ACCOMP & MELODIC ACCOMP SOUND GENERATOR CIRCUIT
IC4
Gate Array
Latch
IC65
Vibraphone Controller (Integrator)
IC64-2
IC64-1
Low-Pass Filter
Q3
D26
Bass Harmonic Control
Q4
Q5
IC66-1
Upper Poly Harmonic Control
Q6
Q7
IC66-2
Lower Poly Harmonic Control
Q8
Q9
IC67-1
U/L Special Harmonic Control
Q10
Q11
IC67-2
U/L Solo Harmonic Control
Q12
Q13
IC68-1
IC68-2
CN9
CN10
CN11
SG CN2
E1 CI2
E1 CN1
R137 1/4W4.7
R138 1/4W4.7
R140 1/4W2

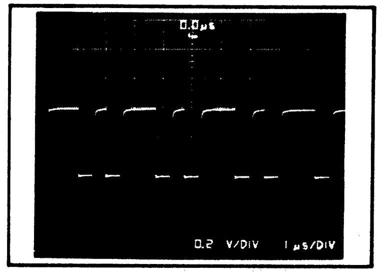
# SG SOUND GENERATOR CIRCUIT DIAGRAM

**❶ TBNK**

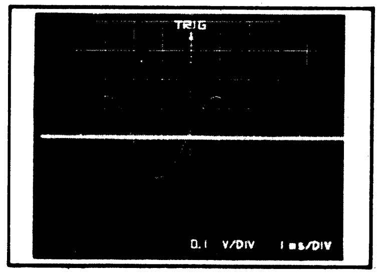


- U. Organ Presets................5
- Upper Key............................ON

❷

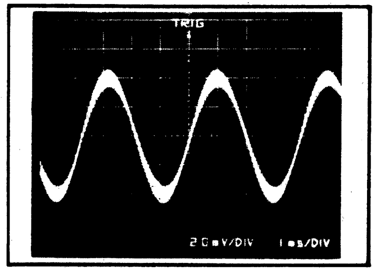


❸



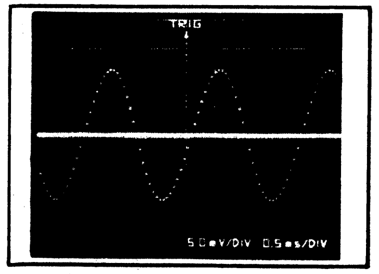
- U. Tab..................................Flute 16'
- Upper Key............................C4
- Tab Volume.........................Max.

❹

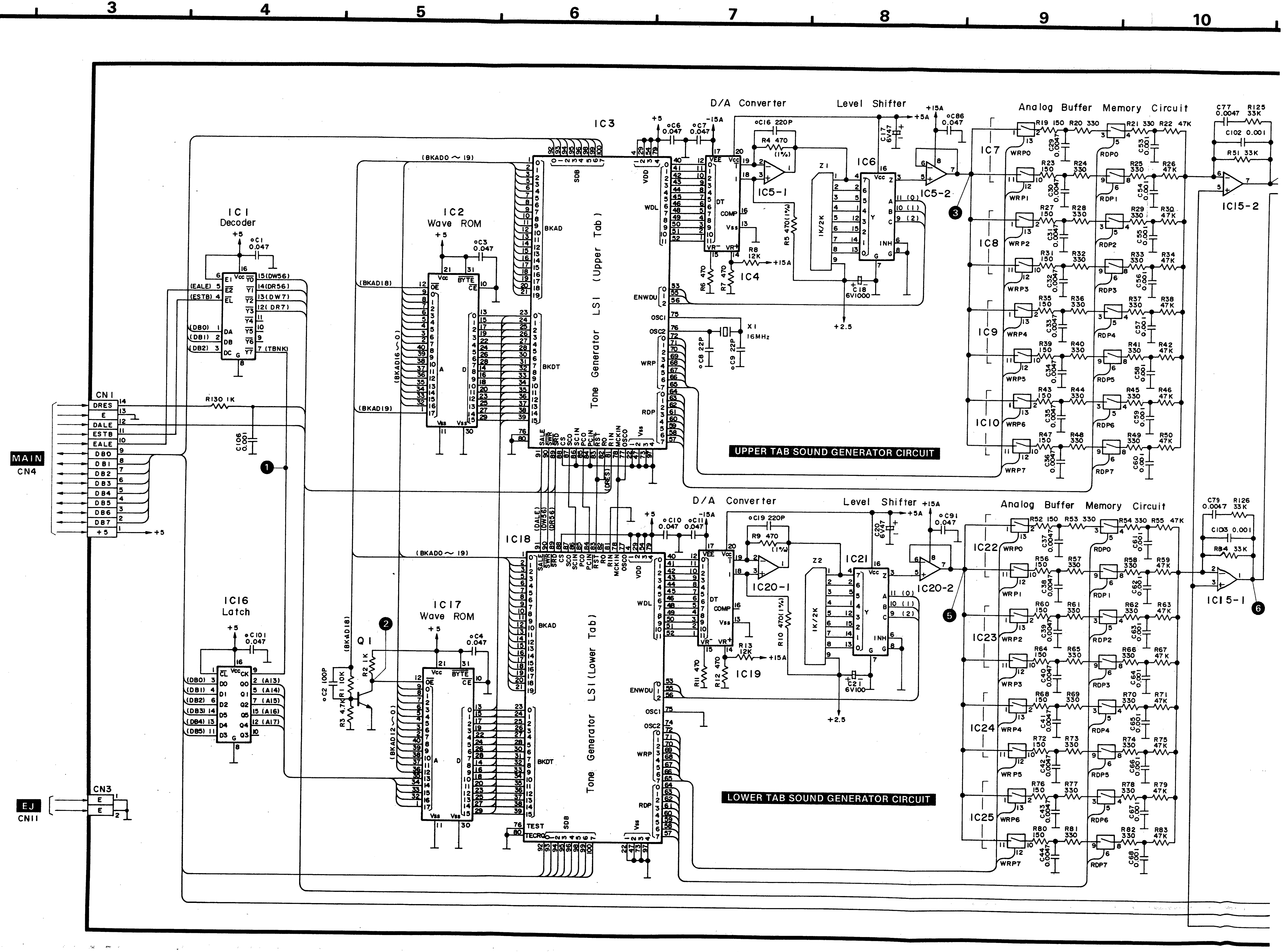


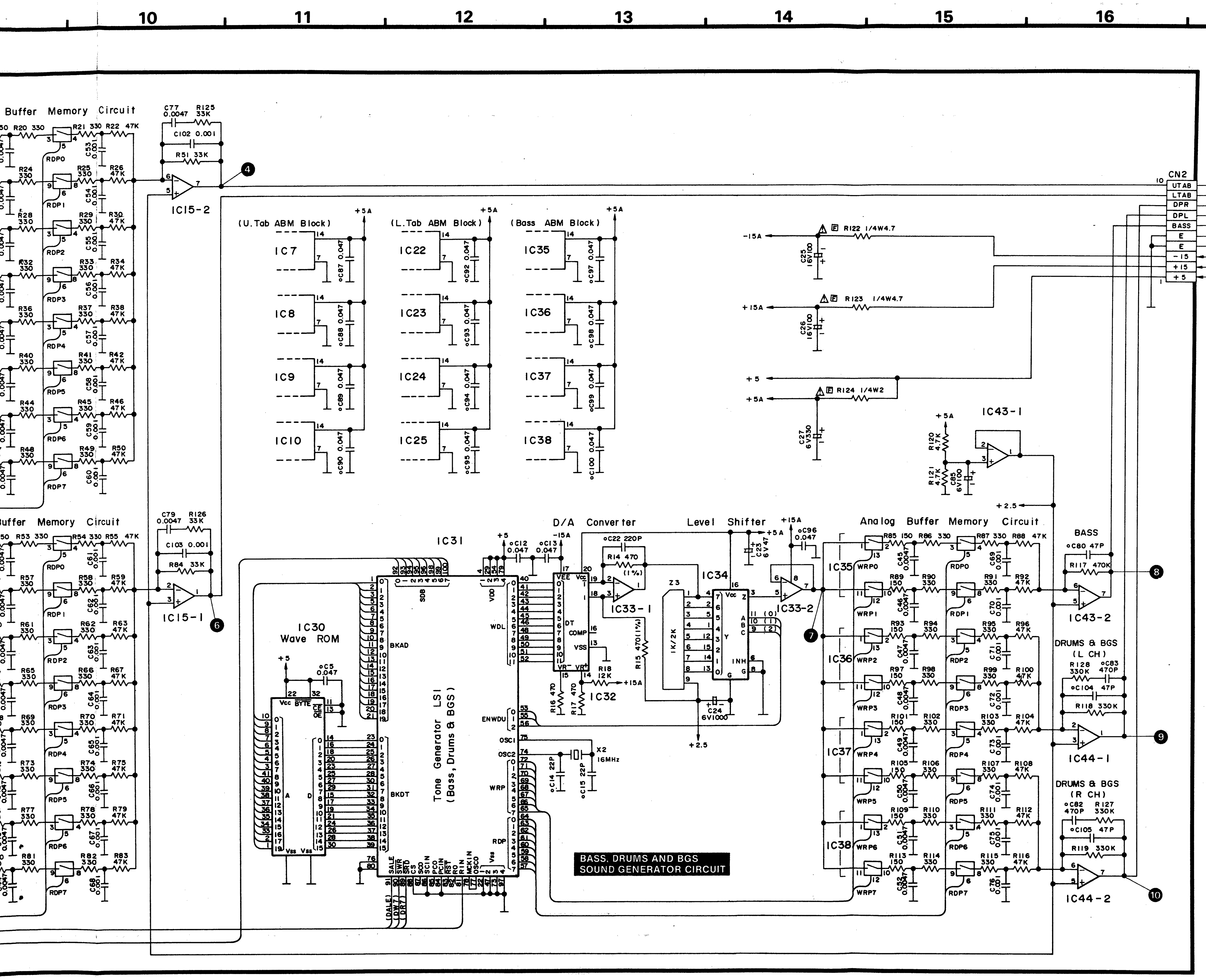
- U. Tab..................................Flute 16'
- Upper Key............................C4
- Tab Volume.........................Max.

❺

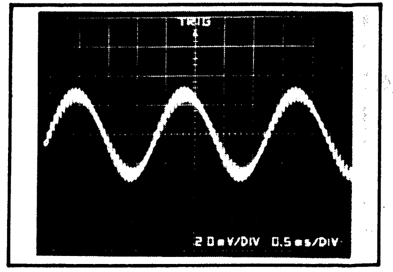


- L. Tab..................................Flute 8'
- Lower Key............................C4
- Tab Volume.........................Max.


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
MAIN
CN4
CN1
DRES
E
DALE
ESTB
EALE
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
+5
EJ
CN11
CN3
R130 1K
C106 0.001
IC1
Decoder
C1 0.047
(EALE)
(ESTB)
(DB0)
(DB1)
(DB2)
(DW56)
(DR56)
(DW7)
(DR7)
(TBNK)
IC16
Latch
C101 0.047
(A13)
(A14)
(A15)
(A16)
(A17)
IC2
Wave ROM
C3 0.047
(BKAD0 ~ 19)
(BKAD18)
(BKAD19)
(BKAD16 ~ 0)
IC17
Wave ROM
C4 0.047
(BKAD12 ~ 0)
Q1
R1 10K
R2 1K
R3 4.7K
C2 100P
IC3
LSI (Upper Tab)
Tone Generator
SDB
BKAD
BKDT
VDD
WDL
ENWDU
OSC1
OSC2
WRP
RDP
X1 16MHz
C8 22P
C9 22P
IC18
LSI (Lower Tab)
TEST
TECRG
(DALE)
(DW56)
(DR56)
(DRES)
D/A Converter
C6 0.047
C7 0.047
C16 220P
R4 470
IC5-1
IC4
R5 470(1%)
R6 470
R7 470
R8 12K
Level Shifter
IC6
Z1
1K/2K
C17 6V47
C18 6V1000
C86 0.047
IC5-2
+2.5
+15A
-15A
Analog Buffer Memory Circuit
IC7
IC8
IC9
IC10
WRP0
WRP1
WRP2
WRP3
WRP4
WRP5
WRP6
WRP7
RDP0
RDP1
RDP2
RDP3
RDP4
RDP5
RDP6
RDP7
UPPER TAB SOUND GENERATOR CIRCUIT
C77 0.0047
R125 33K
C102 0.001
R51 33K
IC15-2
C10 0.047
C11 0.047
C19 220P
R9 470
IC20-1
IC19
R10 470(1%)
R11 470
R12 470
R13 12K
IC21
Z2
C20 6V47
C21 6V100
C91 0.047
IC20-2
IC22
IC23
IC24
IC25
LOWER TAB SOUND GENERATOR CIRCUIT
C79 0.0047
R126 33K
C103 0.001
R84 33K
IC15-1
❶
❷
❸
❺
❻

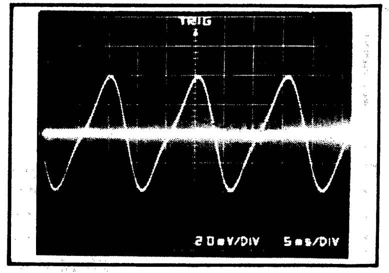

10
11
12
13
14
15
16
17
18
19
Buffer Memory Circuit
(U.Tab ABM Block)
(L.Tab ABM Block)
(Bass ABM Block)
IC7
IC8
IC9
IC10
IC22
IC23
IC24
IC25
IC35
IC36
IC37
IC38
IC15-2
IC15-1
IC30
Wave ROM
IC31
Tone Generator LSI (Bass, Drums & BGS)
D/A Converter
IC32
IC33-1
IC33-2
Level Shifter
IC34
Z3
Analog Buffer Memory Circuit
IC43-1
IC43-2
IC44-1
IC44-2
BASS
DRUMS & BGS (L CH)
DRUMS & BGS (R CH)
X2 16MHz
CN2
UTAB
LTAB
DPR
DPL
BASS
E
E
-15
+15
+5
MAIN
CN11
R122 1/4W4.7
R123 1/4W4.7
R124 1/4W2
-15A
+15A
+5
+5A
+2.5
BASS, DRUMS AND BGS SOUND GENERATOR CIRCUIT

⑥



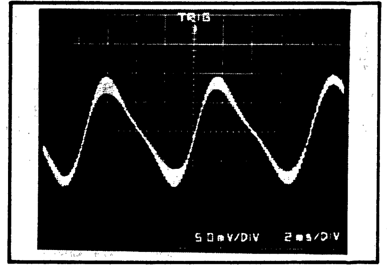
- L. Tab.....................................Flute 8'
- Lower Key ..............................C4
- Tab Volume.............................Max.

⑦



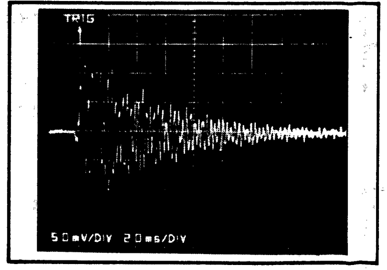
- Bass...Bass 8' • Pedal Key...C2
- Bass Volume.........................Max.
- Harmonic Control...............Normal

⑧



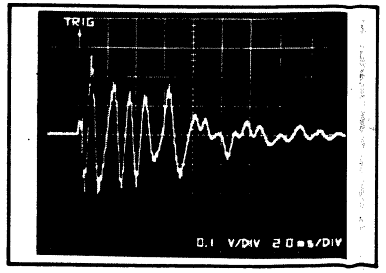
- Bass...Bass 8' • Pedal Key...C2
- Bass Volume.........................Max.

⑨



- Keyboard Percussion ........ON
- High Bongo ......................Lower Key G2, ON
- Drums Volume....................Max.

⑩



- Keyboard Percussion ........ON
- Bass Drum 2 ..................Lower Key C#1, ON
- Drums Volume....................Max.

**NOTES:**

- **IC'S**

| | |
|---|---|
| IC1: | SVIGM74LS137 |
| IC2: | SVIGU3C04159 |
| IC3, 18, 31: | MN6635 |
| IC4, 19, 32: | SVIGBA9221 |
| IC5, 20, 33: | SVIGM5238L |
| IC6, 21, 34: | SVIGT74H4051 |
| IC7～10, 22～25, 35～38: | SVIGM74H4066 |
| IC15, 43, 44: | SVIGM5218L |
| IC16: | MN40174B |
| IC17: | SVIGU3C04160 |
| IC30 — IC1: | SVIGU3C04163 |
| IC30 — IC2: | SVIGU3C04164 |

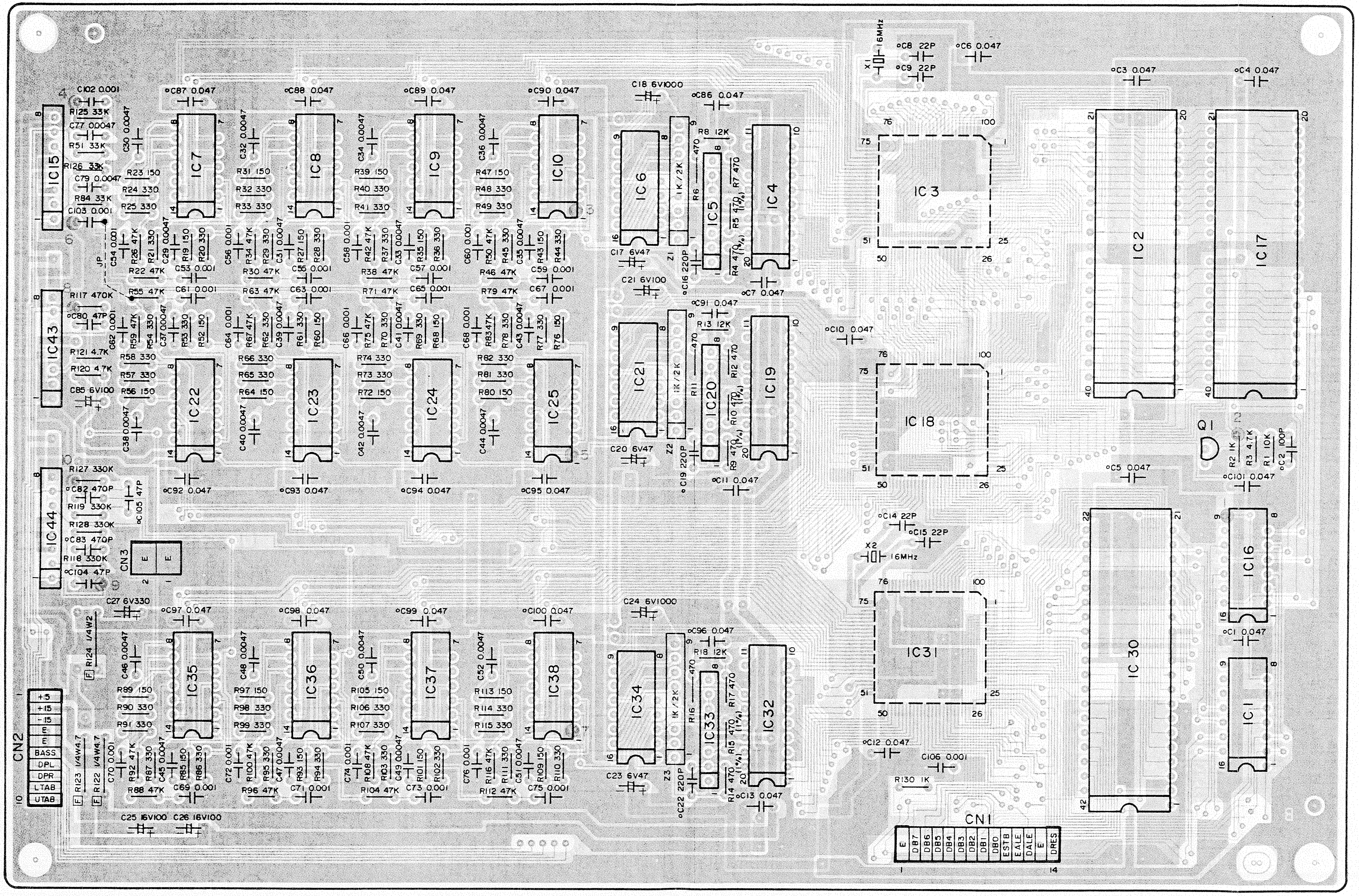
- **TRANSISTOR**

| | |
|---|---|
| Q1: | 2SC1047C |

# SG SOUND GENERATOR CIRCUIT BOARD

Circuit view on top of P.C.B.

SXPG140311


IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
IC24
IC25
IC30
IC31
IC32
IC33
IC34
IC35
IC36
IC37
IC38
IC43
IC44
Q1
X1 16MHz
X2 16MHz
CN1
E
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
ESTB
EALE
DALE
E
DRES
CN2
+5
+15
-15
E
E
BASS
DPL
DPR
LTAB
UTAB
CN3

NOTES:
- IC'S

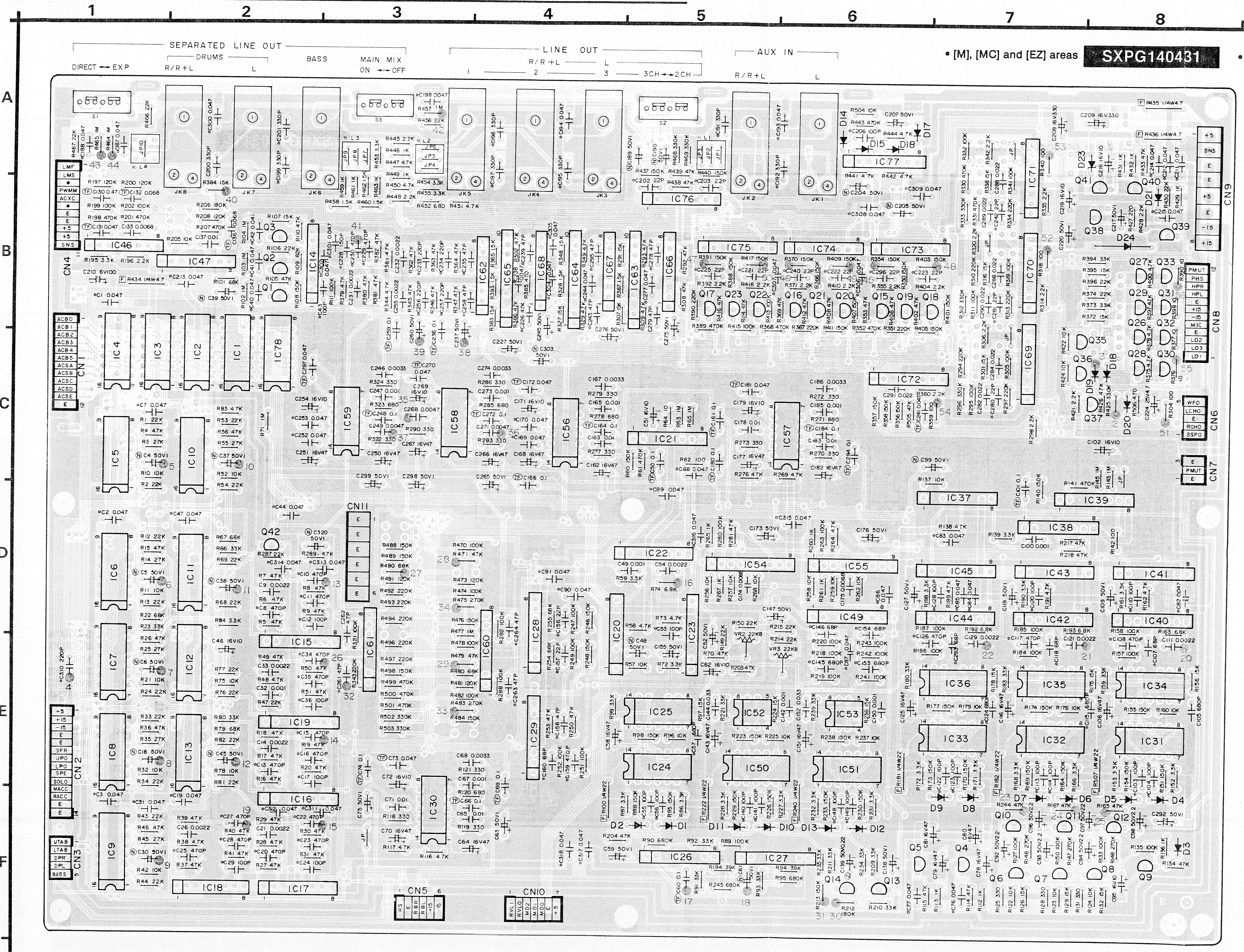
| | |
|---|---|
| IC1: | SVIGM74LS137 |
| IC2: | SVIGU3C04159 |
| IC3, 18, 31: | MN6635 |
| IC4, 19, 32: | SVIGBA9221 |
| IC5, 20, 33: | SVIGM5238L |
| IC6, 21, 34: | SVIGT74H4051 |
| IC7～10, 22～25, 35～38: | SVIGM74H4066 |
| IC15, 43, 44: | SVIGM5218L |
| IC16: | MN40174B |
| IC17: | SVIGU3C04160 |
| IC30 — IC1: | SVIGU3C04163 |
| IC30 — IC2: | SVIGU3C04164 |

- TRANSISTOR

| | |
|---|---|
| Q1: | 2SC1047C |

## EJ EFFECT, MIXING & JACK CIRCUIT BOARD

- [M], [MC] and [EZ] areas **SXPG140431**
- Other areas **SXPG140411**


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SEPARATED LINE OUT
DRUMS
R/R+L
L
BASS
MAIN MIX
ON ←→ OFF
DIRECT ←→ EXP
LINE OUT
R/R+L
L
1
2
3
3CH ←→ 2CH
AUX IN
R/R+L
L
S1
S2
S3
JK1
JK2
JK3
JK4
JK5
JK6
JK7
JK8
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN11
LMF
LMS
PWMM
ACXC
SNS
ACB0
ACB1
ACB2
ACB3
ACB4
ACB5
ACSA
ACSB
ACSC
ACSD
ACSE
UTAB
LTAB
DPR
DPL
BASS
SFR
UPO
LPO
SPE
SOLO
MACC
RACC
PMUT
PHS
HPR
HPL
MIC
LO1
LO2
LO3
WFO
LCHO
RCHO
SSPO
IC46
IC47
IC14
IC62
IC65
IC68
IC64
IC67
IC63
IC66
IC75
IC74
IC73
IC70
IC71
IC76
IC77
IC4
IC3
IC2
IC1
IC78
IC59
IC58
IC56
IC21
IC57
IC72
IC69
IC5
IC10
IC37
IC39
IC38
IC6
IC11
IC22
IC54
IC55
IC45
IC43
IC41
IC15
IC61
IC60
IC28
IC20
IC23
IC49
IC44
IC42
IC40
IC7
IC12
IC36
IC35
IC34
IC19
IC29
IC25
IC52
IC53
IC33
IC32
IC31
IC8
IC13
IC16
IC30
IC24
IC50
IC51
IC9
IC18
IC17
IC26
IC27

### Circuit view on top of P.C.B.

**NOTES:**

- IC'S

| | |
|---|---|
| IC1~4, 78: | MN40174B |
| IC5~11, 13: | SVIGTC4052BP |
| IC12: | SVIGTC4053BP |
| IC14~19, 22, 26~29, 38, 40, 42, 44, 46, 47, 49, 60~62, 66~77: | SVIGM5218L |
| IC20, 23, 37, 41, 43, 45: | SVIGUPC1252H |
| IC21, 39: | SVIGUPC1253H |
| IC24, 31~33, 50, 51: | SVIGMSM4011 |
| IC25, 34~36: | MN3004 |
| IC30, 56~59: | SVIGLM1894N |
| IC52, 53: | MN3006 |
| IC54, 55: | SVIGBA6110 |
| IC63~65: | SVIGM5241L |

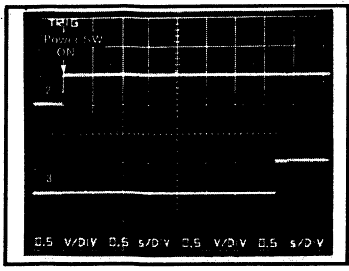
- TRANSISTORS

| | |
|---|---|
| Q1~3, 15~23, 42: | 2SJ105GR |
| Q4, 6~14, 28, 29, 36~39: | 2SC2320LFG |
| Q5, 26, 27, 35, 40, 41: | 2SA1015-GR |
| Q30, 31: | 2SC3940ARS |
| Q32, 33: | 2SA1534ARS |

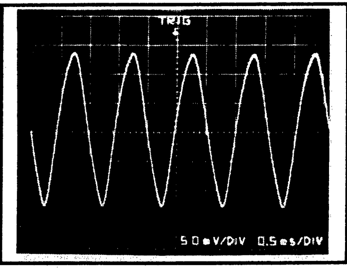
- DIODES

| | |
|---|---|
| D1~21, 24: | MA165TA5 |
| D23: | MA4062 |
| D24: | SVDGRK14 |

**❷, ❸**

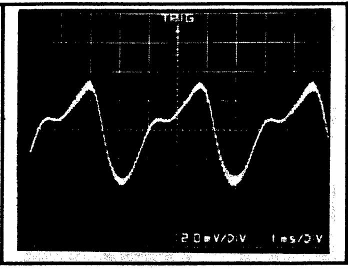


**❹ SFR**



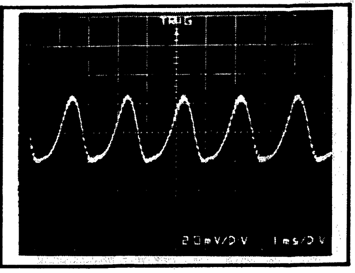
- Record ..................................ON
- Composer 1...........................ON
- Upper Key.............................ON

**❺ U. Poly**



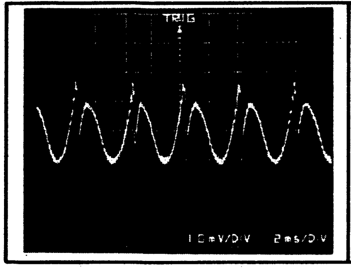
- U. Poly...French Horn • Upper Key...C4
- Upper Poly Volume ............Max.
- Harmonic Control...............Normal

**❻ L. Poly**



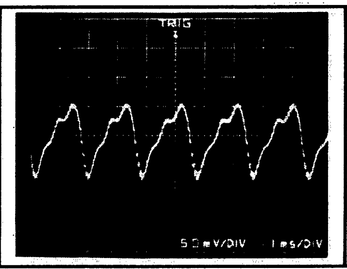
- L. Poly...French Horn • Lower Key...C4
- Lower Poly Volume............Max.
- Harmonic Control...............Normal

**❼ Special**



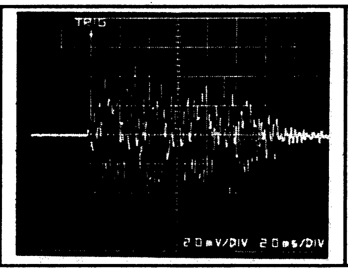
- U. Special...Synth brass • Upper Key...C4
- Special Volume ..................Max.
- Harmonic Control...............Normal

**❽ Solo**

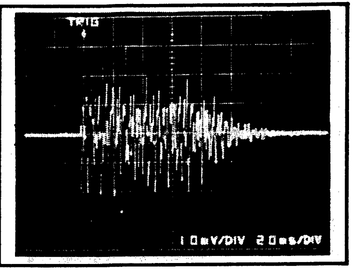


- U. Solo...Flute • Upper Key...C4
- Solo Volume.........................Max.
- Harmonic Control...............Normal

**❾ Melodic Accomp**

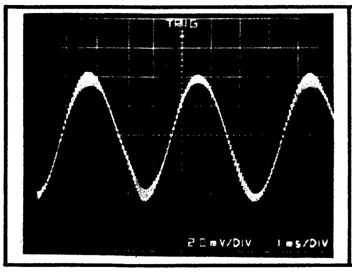


**❿ Rhythmic Accomp**



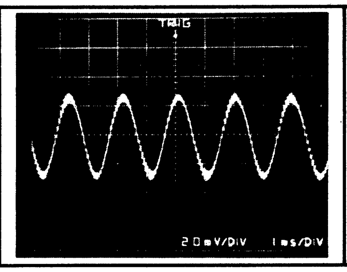
- Rhythm ..................................8 beat 2 (Acoustic)
- Fingeard...ON • Lower Key, C3...ON
- Accomp Volume.................Max.

**⓫ U. Tab**



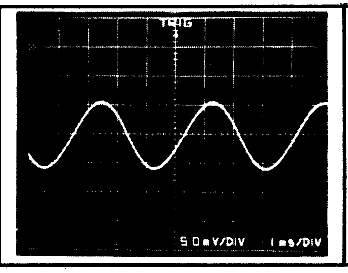
- U. Tab ..................................Flute 16′
- Upper Key............................C4
- Tab Volume.........................Max.

**⓬ L. Tab**



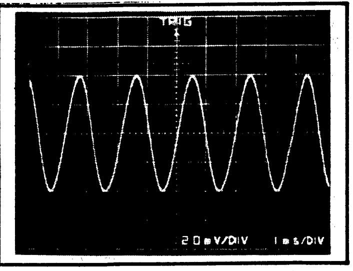
- L. Tab....................................Flute 8′
- Lower Key ............................C4
- Tab Volume..........................Max.

**⓭**



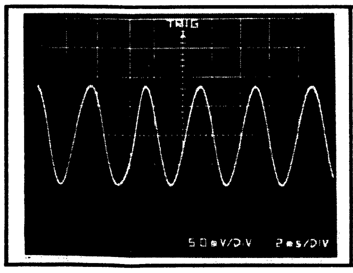
- U. Tab ..................................Flute 16′
- Upper Key.............................C4
- Tab Volume..........................Max.

**⓮**

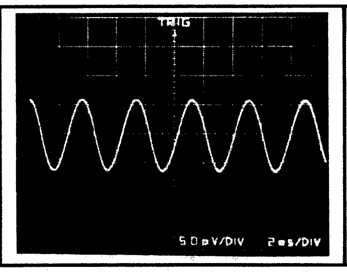


- L. Tab....................................Flute 8′
- Lower Key ............................C4
- Tab Volume..........................Max.

**⓯**

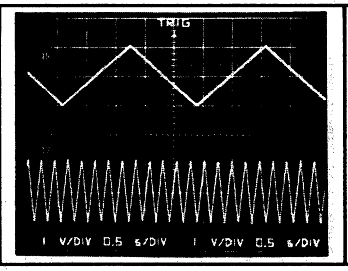


**⓰**



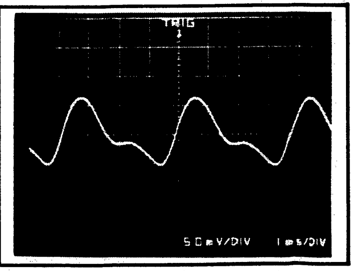
- Chorus ..................................U. Tab ON
- U. Tab ...................................Flute 16′
- Upper Key...C4 • Tab Volume...Max.

**⓱, ⓲**



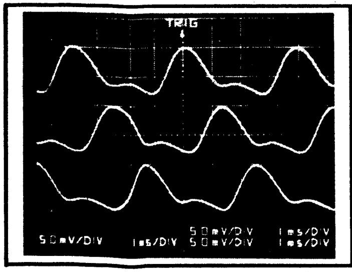
- Chorus .................................U. Tab ON

**⓳**

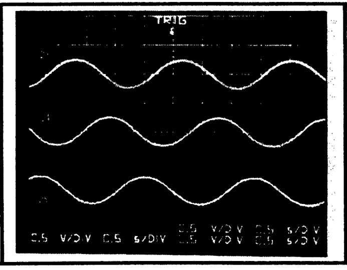


- Chorus...U. Poly ON • Upper Key...C4
- U. Poly...French Horn • Poly Vol....Max.
- Harmonic Control...............Normal

**⓴, ㉑, ㉒**

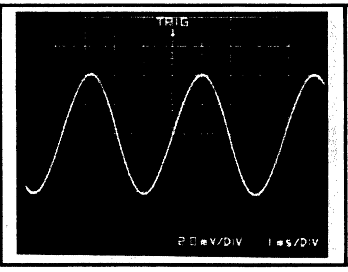


**㉓, ㉔, ㉕**

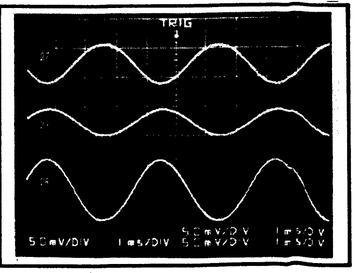


- Celeste...U. Poly ON • Upper Key...C4
- U. Poly...French Horn • Poly Vol....Max.
- Harmonic Control...............Normal

**㉖**

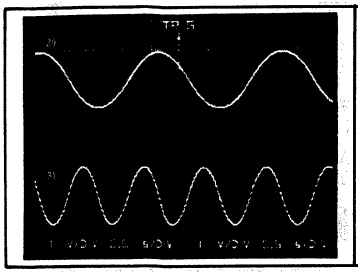


**㉗, ㉘, ㉙**



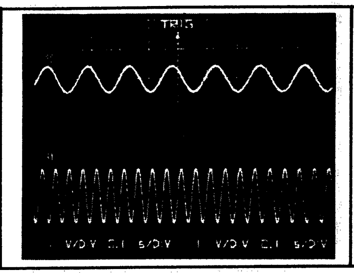
- Tremolo ...............................U. Tab ON
- U. Tab ...................................Flute 16′
- Upper Key...C4 • Tab Volume...Max.

**㉚, ㉛**



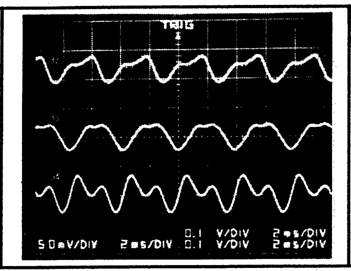
- Tremolo ..............................Slow

**㉚, ㉛**



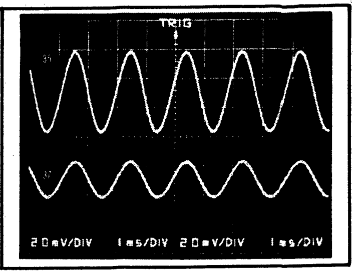
- Tremolo ...............................fast

**㉜, ㉝, ㉞**



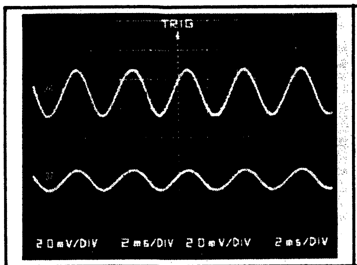
- U. Poly...French Horn • Upper Key...C4
- Poly Volume........................Max.
- Reverb...HALL 3 Depth...Step 3

**㉟, ㊲**



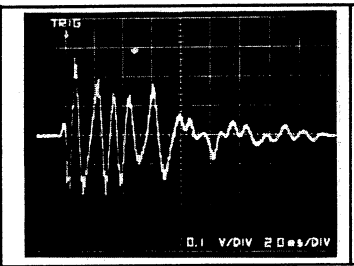
- L. Tab...Flute 8' • Lower Key...C4
- Tab Volume.........................Max.
- Reverb Depth......................OFF

**㊱, ㊲**



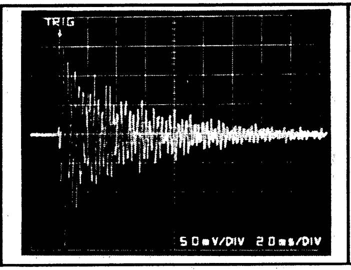
- U. Tab...Flute 16' • Upper Key...C4
- Tab Volume.........................Max.
- Reverb Depth......................OFF

**㊳**



- Keyboard Percussion ........ON
- Bass Drums 2
  (Lower Key C#1)................ON
- Drums Volume....................Max.

**㊴**



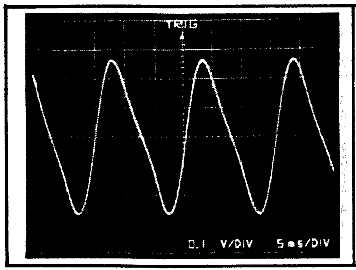
- Keyboard Percussion ........ON
- High Bongo
  (Lower Key G2)..................ON
- Drums Volume....................Max.

### ㊵ Main Vol., EXP Control

| Main Vol. / EXP | MAX. | MIN. |
|---|---|---|
| MAX. | −0.4V | −3.5V |
| MIN. | −6.2V | −10V |

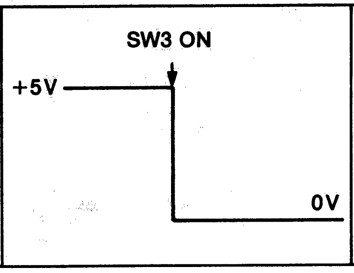
- Upper Key...........................ON

**㊶**

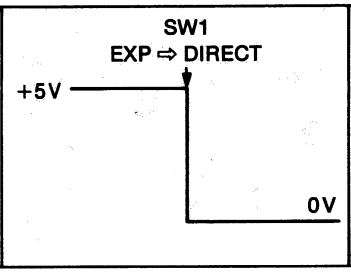


- Bass...16' • Pedal Key...C2
- Bass Volume.......................Max.

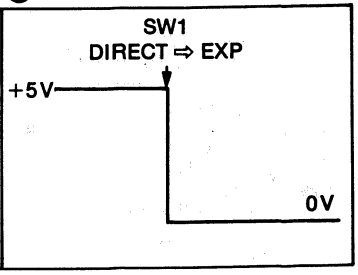
**㊷**



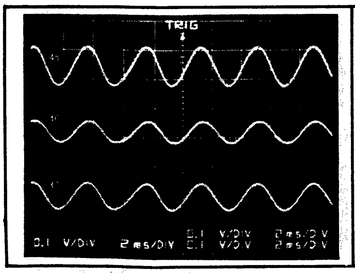
**㊸**



**㊹**

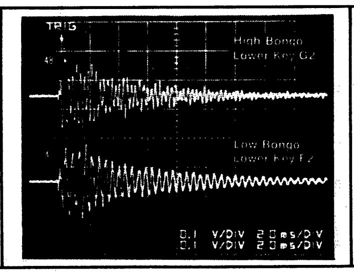


**㊺, ㊻, ㊼**



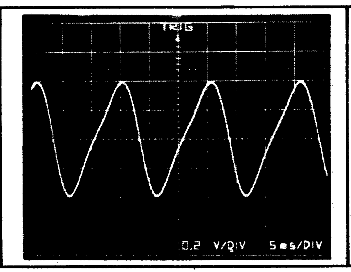
- U. Tab...Flute 16' • Upper Key...C4
- Reverb Depth......................OFF
- EXP, Main Vol., Tab Vol. ...Max.

**㊽, ㊾**



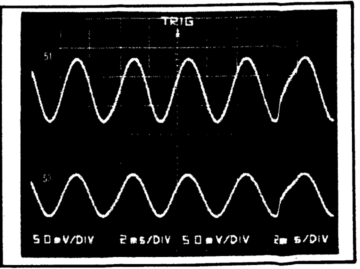
- SW1......................................DIRECT
- Drums Volume....................Max.

**㊿**



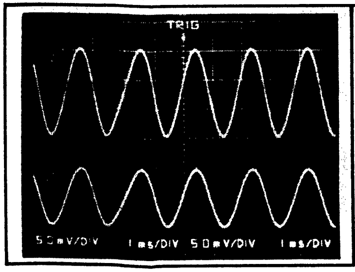
- SW1......................................DIRECT
- Bass...16' • Pedal Key...C2
- Bass Volume.......................Max.

**(51), (53)**



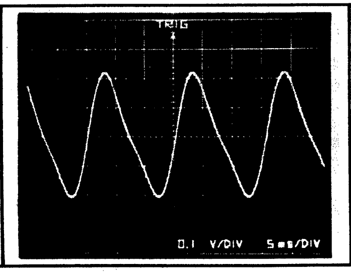
- U. Tab...Flute 16' • Upper Key...C4
- Reverb Depth......................OFF
- EXP, Main Vol., Tab Vol. ...Max

**(52), (53)**



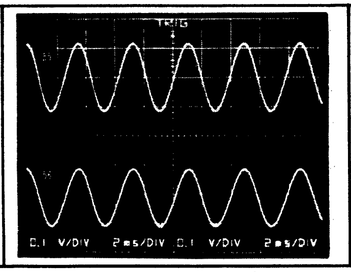
- L. Tab...Flute 8' • Lower Key...C4
- Reverb Depth......................OFF
- EXP, Main Vol., Tab Vol. ...Max.

**(54)**



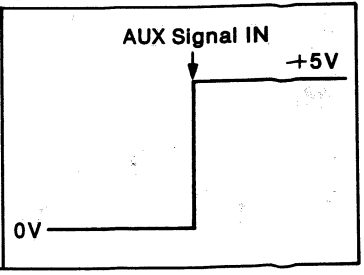
- Bass...16' • Pedal Key...C2
- EXP, Main Volume ............Max.
- Bass Volume.......................Max.

**(55), (56)**

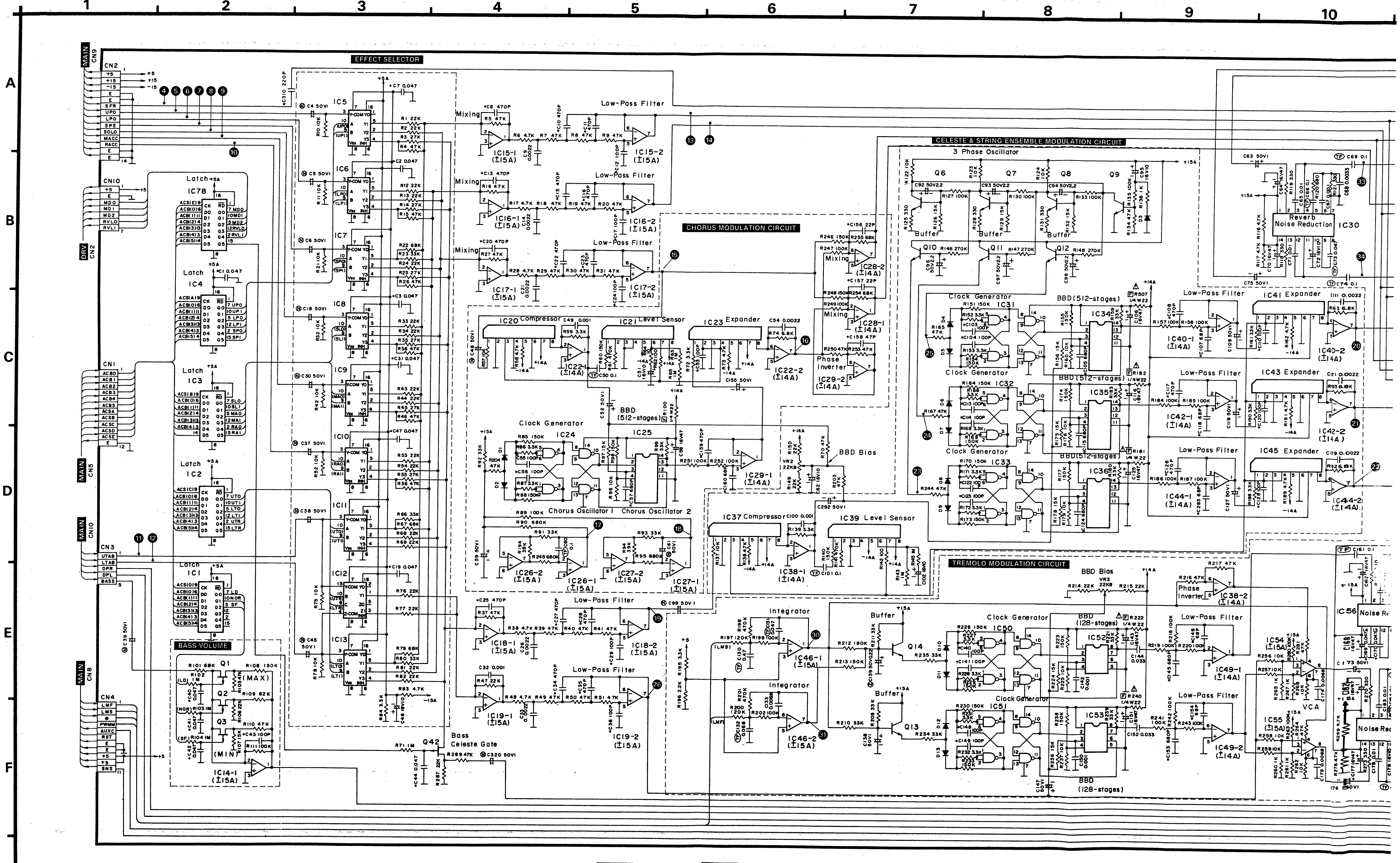


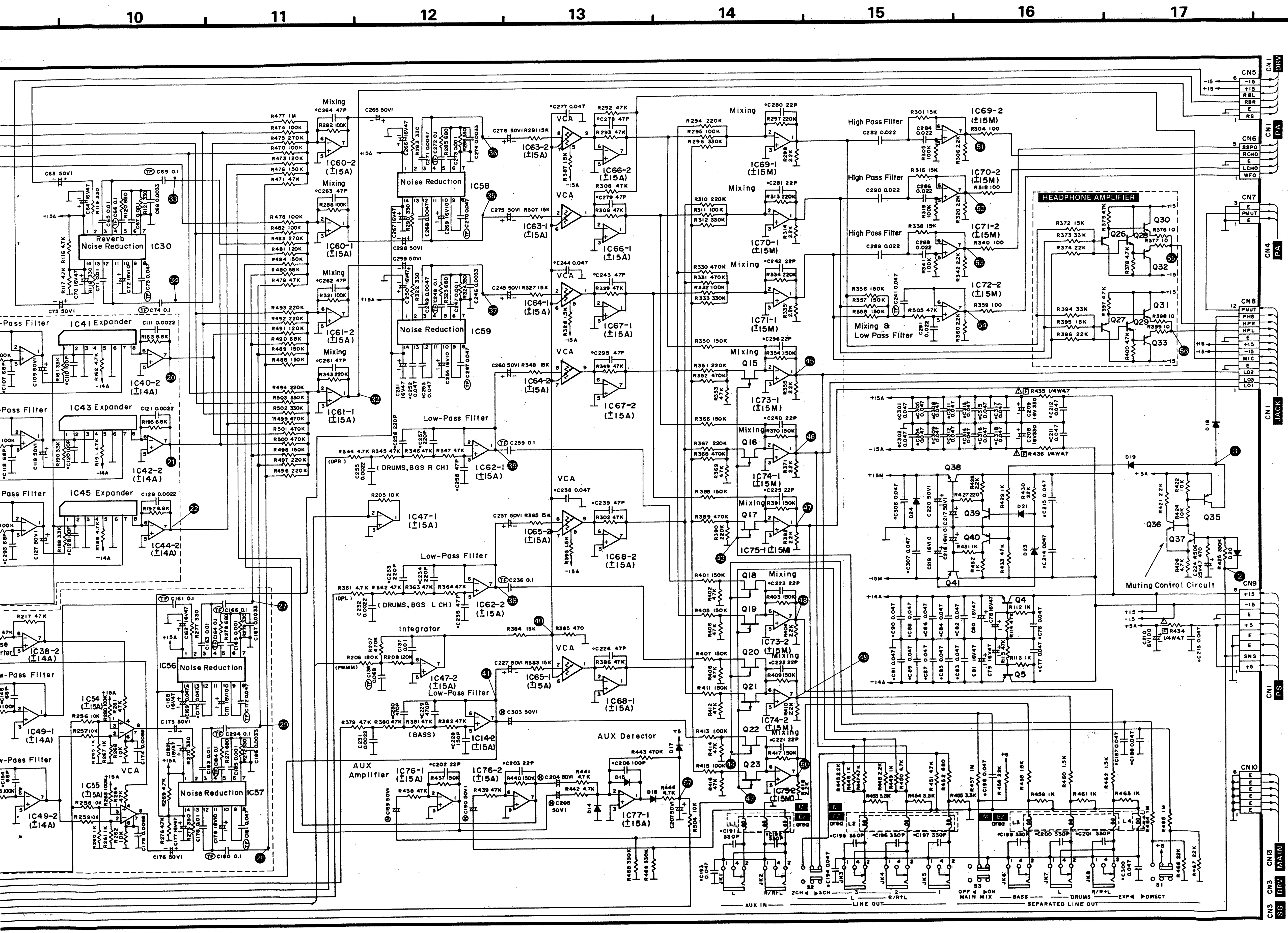
- U. Tab...Flute 16' • Upper Key...C4
- EXP, Main Vol., Tab Vol. ...Max.
- Reverb.................................OFF

### (57) AUXC



# EFFECT, MIXING & JACK CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
MAIN CN9
CN2
DRV CN2
CN10
CN1
MAIN CN5
MAIN CN10
CN3
MAIN CN8
CN4
EFFECT SELECTOR
Latch IC78
Latch IC4
Latch IC3
Latch IC2
Latch IC1
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
Mixing
Low-Pass Filter
IC15-1 (±15A)
IC15-2 (±15A)
IC16-1 (±15A)
IC16-2 (±15A)
IC17-1 (±15A)
IC17-2 (±15A)
CHORUS MODULATION CIRCUIT
IC20 Compressor
IC21 Level Sensor
IC23 Expander
IC22-1 (±14A)
IC22-2 (±14A)
IC28-1 (±14A)
IC28-2 (±14A)
Phase Inverter
IC29-2 (±14A)
BBD (512-stages)
Clock Generator
IC24
IC25
IC29-1 (±14A)
BBD Bias
Chorus Oscillator 1
Chorus Oscillator 2
IC26-1 (±15A)
IC26-2 (±15A)
IC27-1 (±15A)
IC27-2 (±15A)
BASS VOLUME
Q1
Q2
Q3
(MAX)
(MIN)
IC14-1 (±15A)
Q42
Bass Celeste Gate
IC18-1 (±15A)
IC18-2 (±15A)
IC19-1 (±15A)
IC19-2 (±15A)
CELESTE & STRING ENSEMBLE MODULATION CIRCUIT
3 Phase Oscillator
Q6
Q7
Q8
Q9
Buffer
Q10
Q11
Q12
Reverb Noise Reduction
IC30
Clock Generator
IC31
IC32
IC33
BBD (512-stages)
IC34
IC35
IC36
Low-Pass Filter
IC41 Expander
IC43 Expander
IC45 Expander
IC40-1 (±14A)
IC40-2 (±14A)
IC42-1 (±14A)
IC42-2 (±14A)
IC44-1 (±14A)
IC44-2 (±14A)
IC37 Compressor
IC39 Level Sensor
IC38-1 (±14A)
TREMOLO MODULATION CIRCUIT
BBD Bias
Phase Inverter
IC38-2 (±14A)
Integrator
IC46-1 (±15A)
IC46-2 (±15A)
Buffer
Q14
Q13
Clock Generator
IC50
IC51
BBD (128-stages)
IC52
IC53
IC49-1 (±14A)
IC49-2 (±14A)
IC54 (±15A)
IC55 (±15A)
VCA
IC56
Noise Re


10
11
12
13
14
15
16
17
18
19
Reverb Noise Reduction IC30
IC41 Expander
IC43 Expander
IC45 Expander
IC40-2 (±14A)
IC42-2 (±14A)
IC44-2 (±14A)
IC38-2 (±14A)
IC49-1 (±14A)
IC49-2 (±14A)
IC54 (±15A)
IC55 (±15A)
VCA
IC56 Noise Reduction
IC57 Noise Reduction
Mixing
IC60-2 (±15A)
IC60-1 (±15A)
IC61-2 (±15A)
IC61-1 (±15A)
Noise Reduction IC58
Noise Reduction IC59
IC63-2 (±15A)
IC63-1 (±15A)
IC64-1 (±15A)
IC64-2 (±15A)
IC65-2 (±15A)
IC65-1 (±15A)
IC66-2 (±15A)
IC66-1 (±15A)
IC67-1 (±15A)
IC67-2 (±15A)
IC68-2 (±15A)
IC68-1 (±15A)
Low-Pass Filter
IC62-1 (±15A)
IC62-2 (±15A)
( DRUMS, BGS R CH )
( DRUMS, BGS L CH )
(BASS)
IC47-1 (±15A)
Integrator
IC47-2 (±15A)
IC142 (±15A)
AUX Amplifier
IC76-1 (±15A)
IC76-2 (±15A)
AUX Detector
IC77-1 (±15A)
IC69-1 (±15M)
IC70-1 (±15M)
IC71-1 (±15M)
IC73-1 (±15M)
IC74-1 (±15M)
IC75-1 (±15M)
IC73-2 (±15M)
IC74-2 (±15M)
IC75-2 (±15M)
High Pass Filter
IC69-2 (±15M)
IC70-2 (±15M)
IC71-2 (±15M)
IC72-2 (±15M)
Mixing & Low Pass Filter
HEADPHONE AMPLIFIER
Q26
Q27
Q28
Q29
Q30
Q31
Q32
Q33
Q15
Q16
Q17
Q18
Q19
Q20
Q21
Q22
Q23
Q36
Q37
Q35
Q38
Q39
Q40
Q41
Q4
Q5
Muting Control Circuit
CN5 CN1 DRV
CN6 CN1 PA
CN7
CN4 PA
CN8 CN1 JACK
CN9 CN1 PS
CN10
CN13 MAIN
CN3 DRV
CN3 SG
AUX IN
LINE OUT
SEPARATED LINE OUT
MAIN MIX
BASS
DRUMS
EXP
DIRECT
2CH
3CH
JK1
JK2
JK3
JK4
JK5
JK6
JK7
JK8
S1
S2
S3

**NOTES:**

- IC'S

| | |
|---|---|
| IC1~4, 78: | MN40174B |
| IC5~11, 13: | SVIGTC4052BP |
| IC12: | SVIGTC4053BP |
| IC14~19, 22, 26~29, 38, 40, 42, 44, 46, 47, 49, 60~62, 66~77: | SVIGM5218L |
| IC20, 23, 37, 41, 43, 45: | SVIGUPC1252H |
| IC21, 39: | SVIGUPC1253H |
| IC24, 31~33, 50, 51: | SVIGMSM4011 |
| IC25, 34~36: | MN3004 |
| IC30, 56~59: | SVIGLM1894N |
| IC52, 53: | MN3006 |
| IC54, 55: | SVIGBA6110 |
| IC63~65: | SVIGM5241L |

- TRANSISTORS

| | |
|---|---|
| Q1~3, 15~23, 42: | 2SJ105GR |
| Q4, 6~14, 28, 29, 36~39: | 2SC2320LFG |
| Q5, 26, 27, 35, 40, 41: | 2SA1015-GR |
| Q30, 31: | 2SC3940ARS |
| Q32, 33: | 2SA1534ARS |

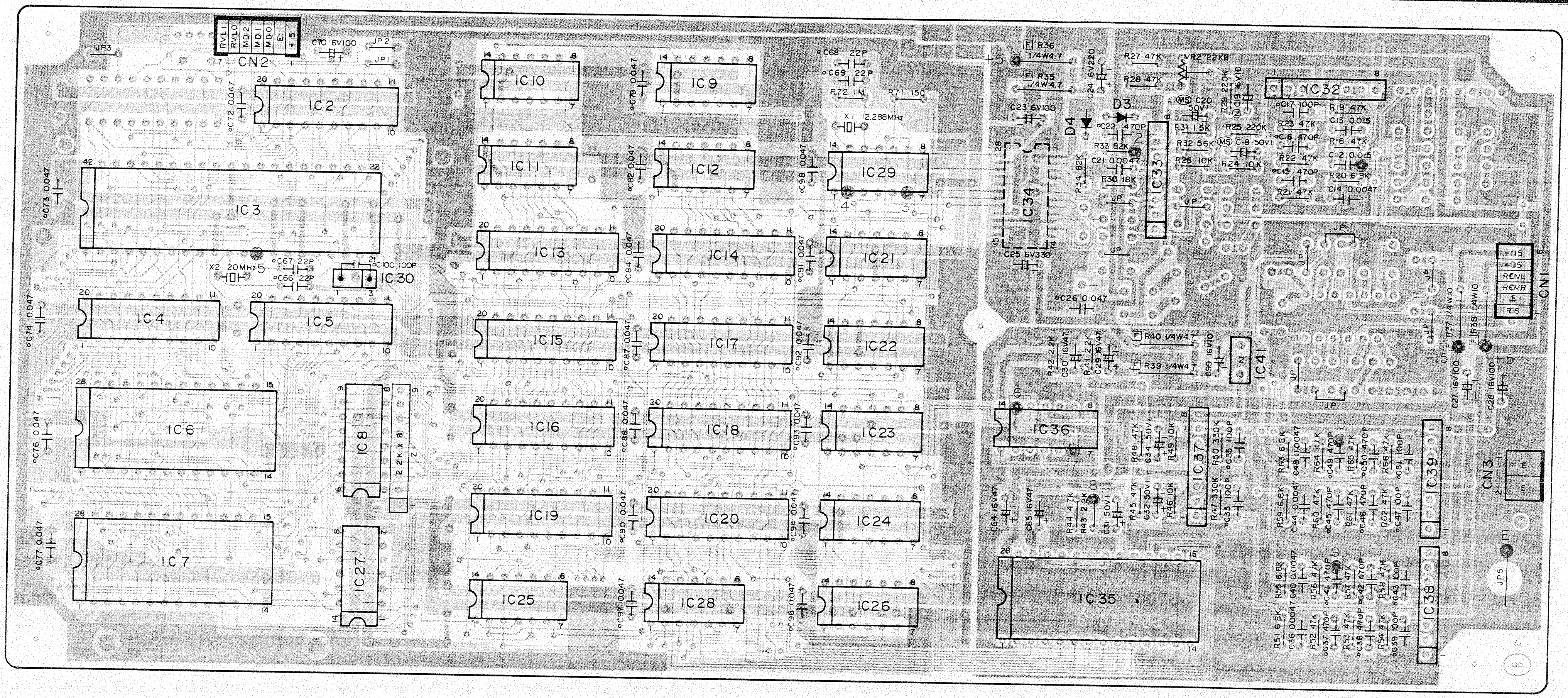
- DIODES

| | |
|---|---|
| D1~21, 24: | MA165TA5 |
| D23: | MA4062 |
| D24: | SVDGRK14 |

# DIGITAL REVERB CIRCUIT BOARD

Circuit view on top of P.C.B.

**SXPG141811**


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
CN1
CN2
CN3
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
IC24
IC25
IC26
IC27
IC28
IC29
IC30
IC32
IC33
IC34
IC35
IC36
IC37
IC38
IC39
IC41
X1 12.288MHz
X2 20MHz
D3
D4
JP1
JP2
JP3
JP5
+5

**NOTES:**

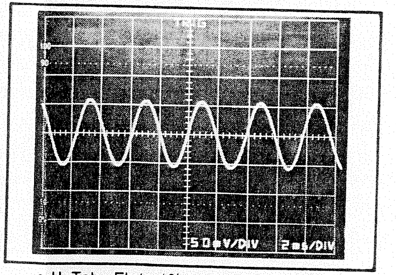
- IC'S

| | |
|---|---|
| IC2: | SVIGM74HC244 |
| IC3: | SVIG87064071 |
| IC4, 5, 13〜20: | SVIGM74HC374 |
| IC6, 7: | SVIGHM65256 |
| IC8: | SVIGM74HC138 |
| IC9〜12, 24: | SVIGM74H164 |
| IC21〜23: | SVIGM74H74 |
| IC25, 27: | SVIGM74H32 |
| IC26: | SVIGM74H08 |
| IC28, 29: | SVIGM74H04 |
| IC30: | MN1280R |
| IC32, 37〜39: | SVIGM5218L |
| IC33: | SVIGM5220L |
| IC34: | MN8305S |
| IC35: | SVIGPCM54 |
| IC36: | SVIGM74H4066 |
| IC41: | SVIGM5278L05 |

- DIODES

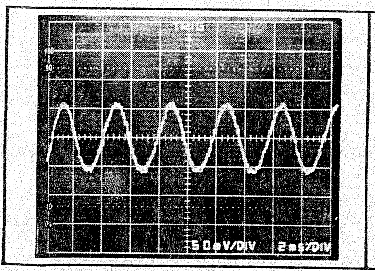
| | |
|---|---|
| D3, 4: | MA165TA5 |

❶



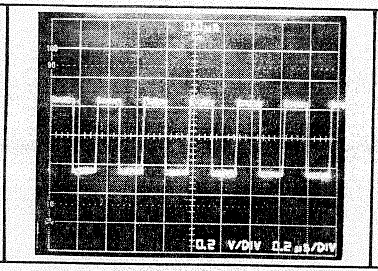
- U. Tab...Flute 16′ • Upper Key...C4
- Tab Volume........................Max.
- Reverb Mode......................HALE 3
- Depth ...............................Step 3

❷

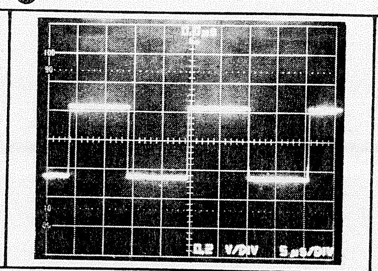


- U. Tab...Flute 16′ • Upper Key...C4
- Tab Volume........................Max.
- Reverb Mode......................HALE 3
- Depth ...............................Step 3

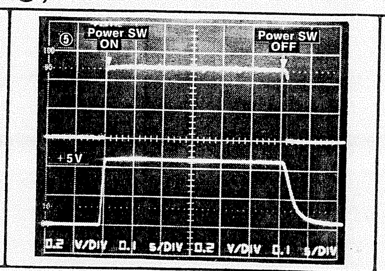
❸



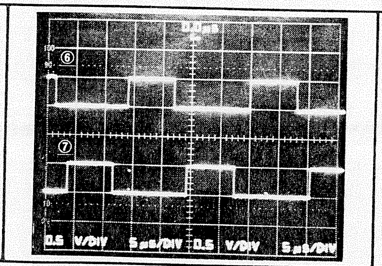
❹



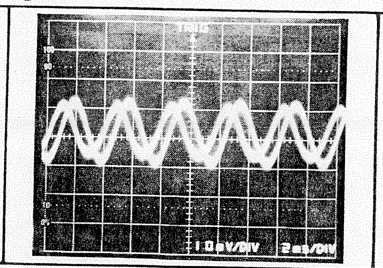
❺, +5V



❻, ❼

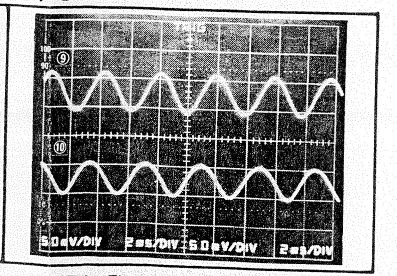


❽

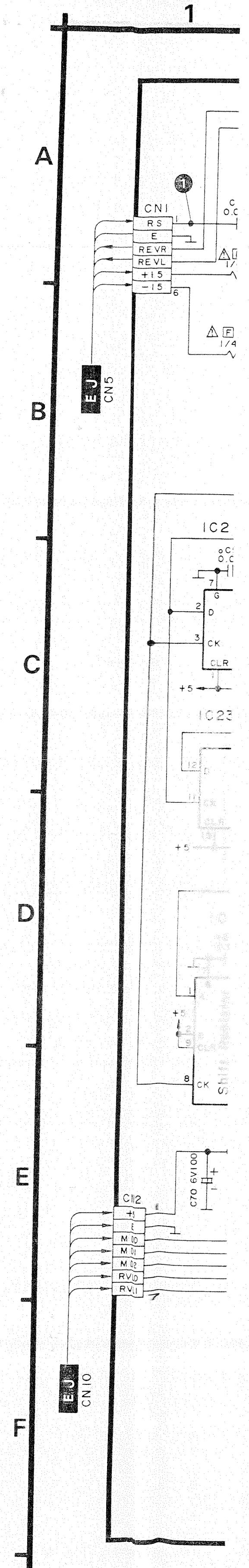


- U. Tab...Flute 16′ • Upper Key...C4
- Tab Volume........................Max.
- Reverb Mode......................HALE 3
- Depth ...............................Step 3

❾, ❿



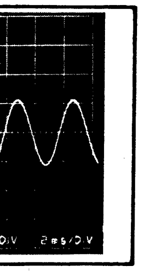
- U. Tab...Flute 16′ • Upper Key...C4
- Tab Volume........................Max.
- Reverb Mode......................HALE 3
- Depth ...............................Step 3


1
A
B
C
D
E
F
CN1
RS
E
REVR
REVL
+15
-15
CN5
IC2
IC23
C12
CN10

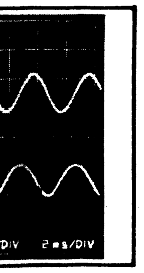
9

74HC244
7064071
74HC374
M65256
74HC138
74H164
74H74
74H32
74H08
74H04
0R
5218L
5220L
5S
CM54
74H4066
5278L05

TA5

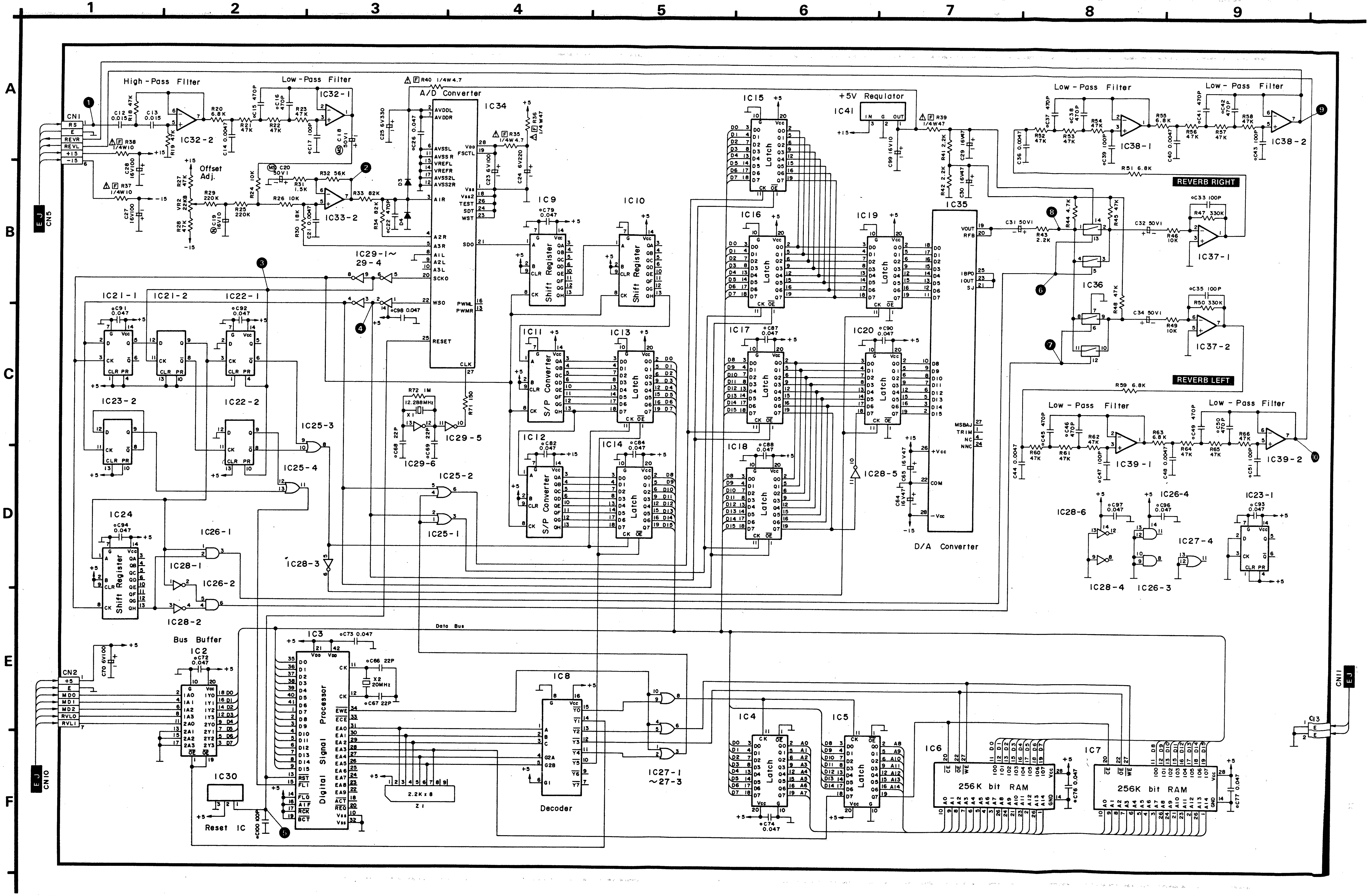


per Key...C4
...Max.
...HALE 3
...Step 3

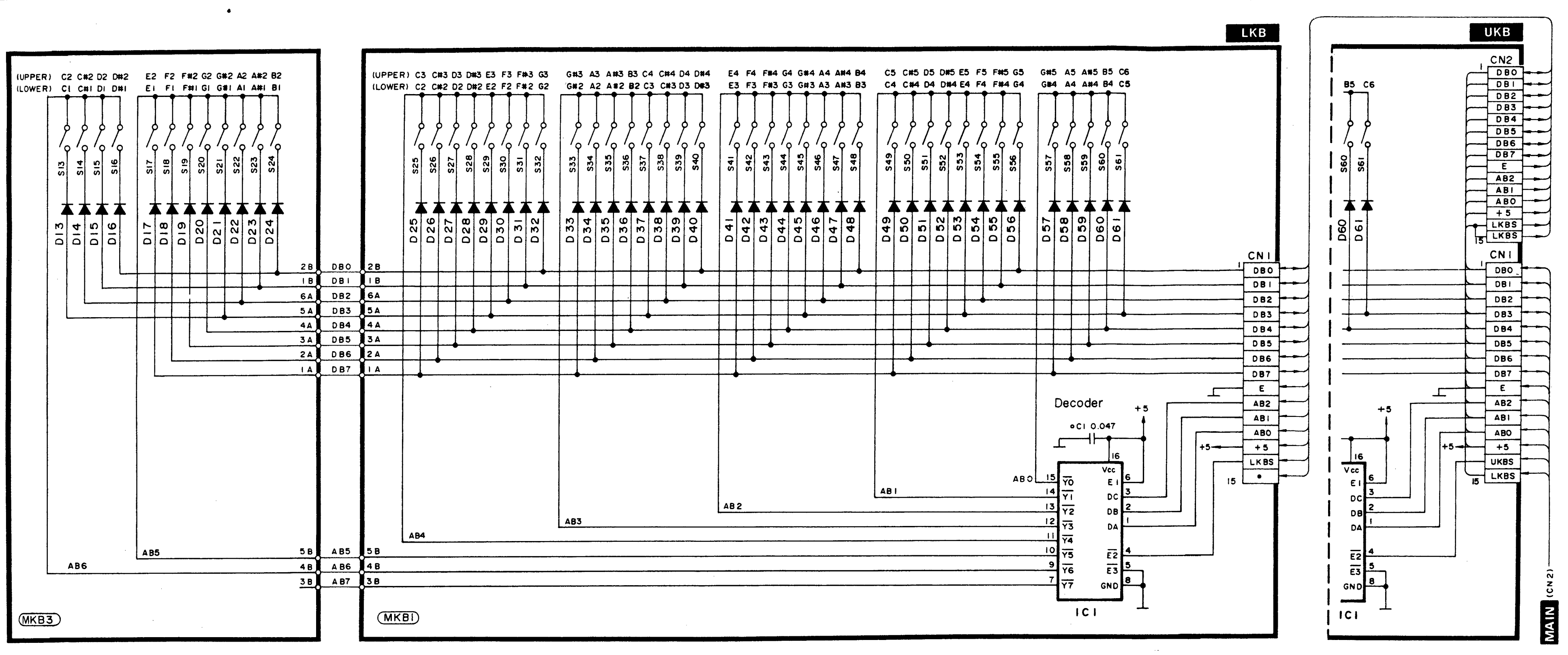


per Key...C4
...Max.
...HALE 3
...Step 3

## DRV DIGITAL REVERB CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
High-Pass Filter
Low-Pass Filter
A/D Converter
IC34
IC32-1
IC32-2
IC33-2
Offset Adj.
CN1
RS
E
REVR
REVL
+15
-15
EJ CN5
R40 1/4W4.7
R35 1/4W4.7
R36 1/4W47
R38 1/4W10
R37 1/4W10
AVDDL
AVDDR
AVSSL
AVSSR
VREFL
VREFR
AVSS2L
AVSS2R
A1R
A2R
A3R
A1L
A2L
A3L
SCKO
WSO
RESET
CLK
SDO
PWML
PWMR
FSCTL
TEST
SDT
WST
IC29-1~29-4
IC29-5
IC29-6
12.288MHz
X1
IC9
IC10
IC11
IC12
IC13
IC14
Shift Register
S/P Converter
Latch
IC15
IC16
IC17
IC18
IC19
IC20
+5V Regulator
IC41
IN G OUT
IC35
VOUT
RFB
IBPO
IOUT
SJ
MSBAJ
TRIM
NC
NNC
+Vcc
COM
-Vcc
D/A Converter
IC28-5
Low-Pass Filter
IC38-1
IC38-2
REVERB RIGHT
REVERB LEFT
IC36
IC37-1
IC37-2
IC39-1
IC39-2
IC21-1
IC21-2
IC22-1
IC22-2
IC23-2
IC23-1
IC24
IC25-1
IC25-2
IC25-3
IC25-4
IC26-1
IC26-2
IC26-3
IC26-4
IC27-4
IC28-1
IC28-2
IC28-3
IC28-4
IC28-6
Data Bus
Bus Buffer
IC2
CN2
+5
E
MDO
MDI
MD2
RVLO
RVLI
EJ CN10
IC3
Digital Signal Processor
X2 20MHz
2.2K×8
Z1
IC30
Reset IC
IC8
Decoder
IC27-1~27-3
IC4
IC5
IC6
IC7
256K bit RAM
CN11 EJ
C13

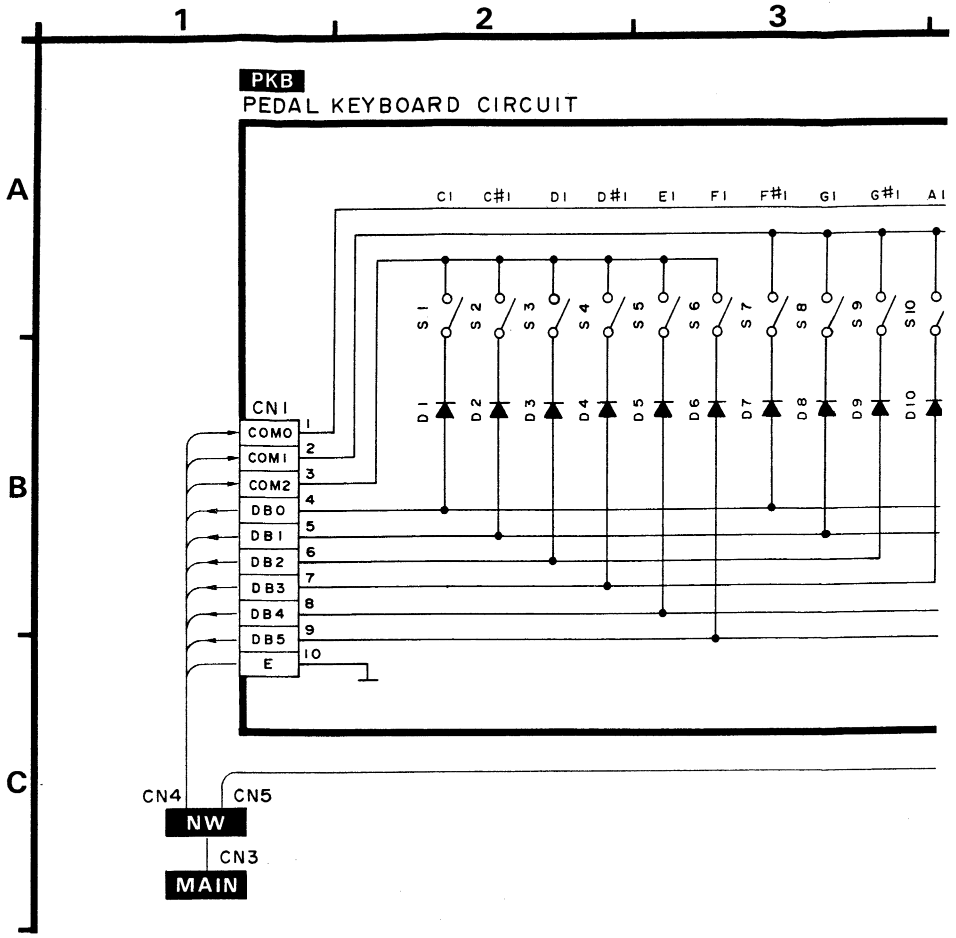
## MKB MANUAL KEYBOARD CIRCUIT DIAGRAM


LKB
UKB
(UPPER)
(LOWER)
MKB3
MKB1
Decoder
C1 0.047
IC1
CN1
CN2
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E
AB0
AB1
AB2
+5
LKBS
UKBS
MAIN (CN21)

**MKB3**
NOTES:
- DIODES
  D13~24: MA162A

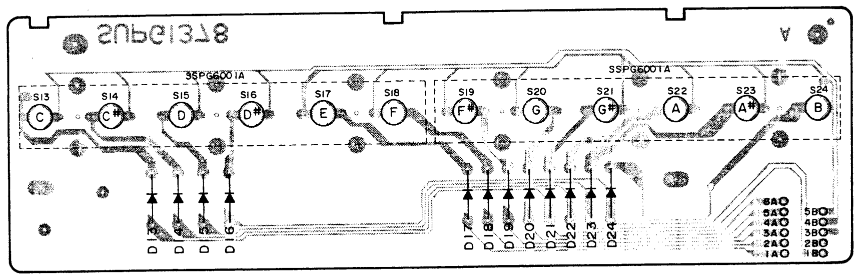
**MKB1**
NOTES:
- IC
  IC1: SVIGM74LS138
- DIODES
  D25~61: MA162A

## PKB PEDAL KEYBOARD CIRCUIT D

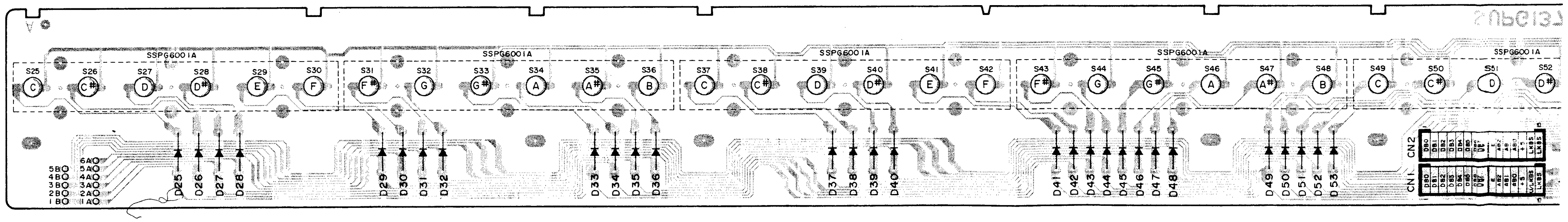

PKB
PEDAL KEYBOARD CIRCUIT
CN1
COM0
COM1
COM2
DB0
DB1
DB2
DB3
DB4
DB5
E
CN4
CN5
NW
CN3
MAIN

## MKB MANUAL KEYBOARD CIRCUIT BOARD

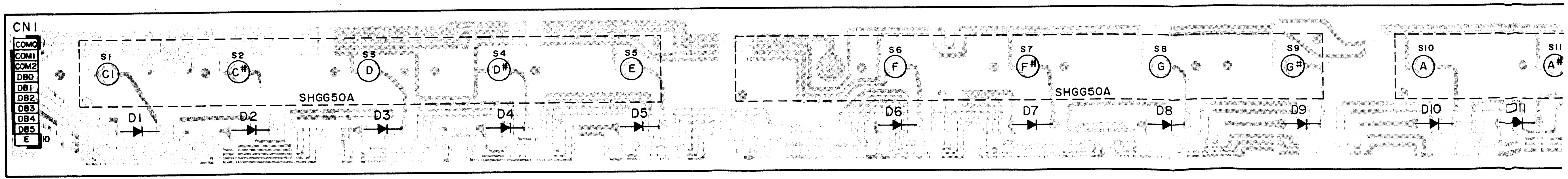
**MKB3** **MANUAL KEYBOARD 3** **SXPG137811**

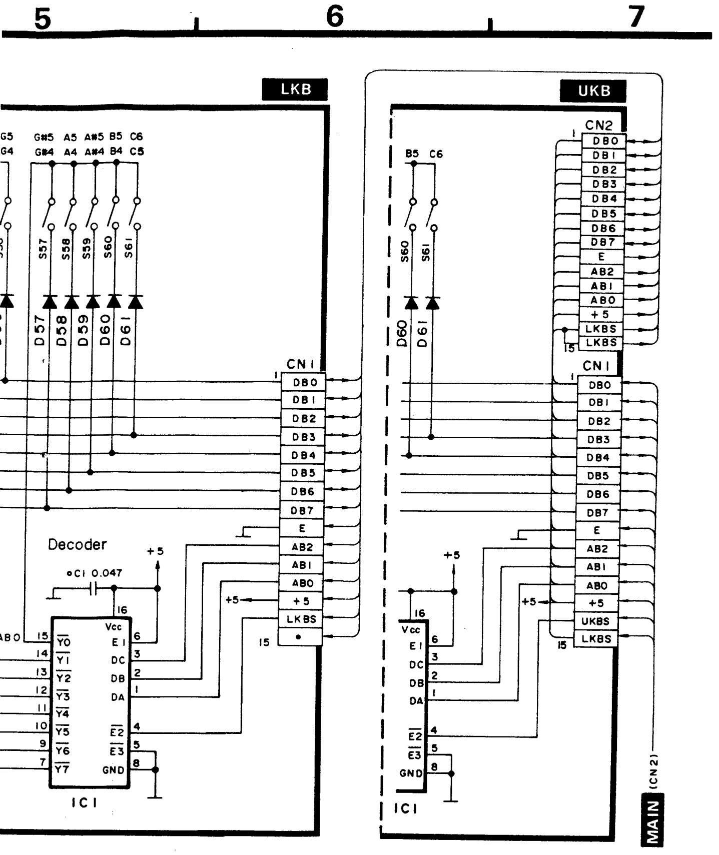

SUPG1378
SSPG6001A

**MKB1** **MANUAL KEYBOARD 1 CIRCUIT BOARD**


SSPG6001A
CN1
CN2

## PKB PEDAL KEYBOARD CIRCUIT BOARD


CN1
COM0
COM1
COM2
DB0
DB1
DB2
DB3
DB4
DB5
E
SHGG50A


5
6
7
LKB
UKB
CN2
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E
AB2
AB1
AB0
+5
LKBS
CN1
UKBS
Decoder
eC1 0.047
Vcc
E1
DC
DB
DA
E2
E3
GND
IC1
+5
S57
S58
S59
S60
S61
D57
D58
D59
D60
D61
B5
C6
MAIN (CN2)

**MKB3**

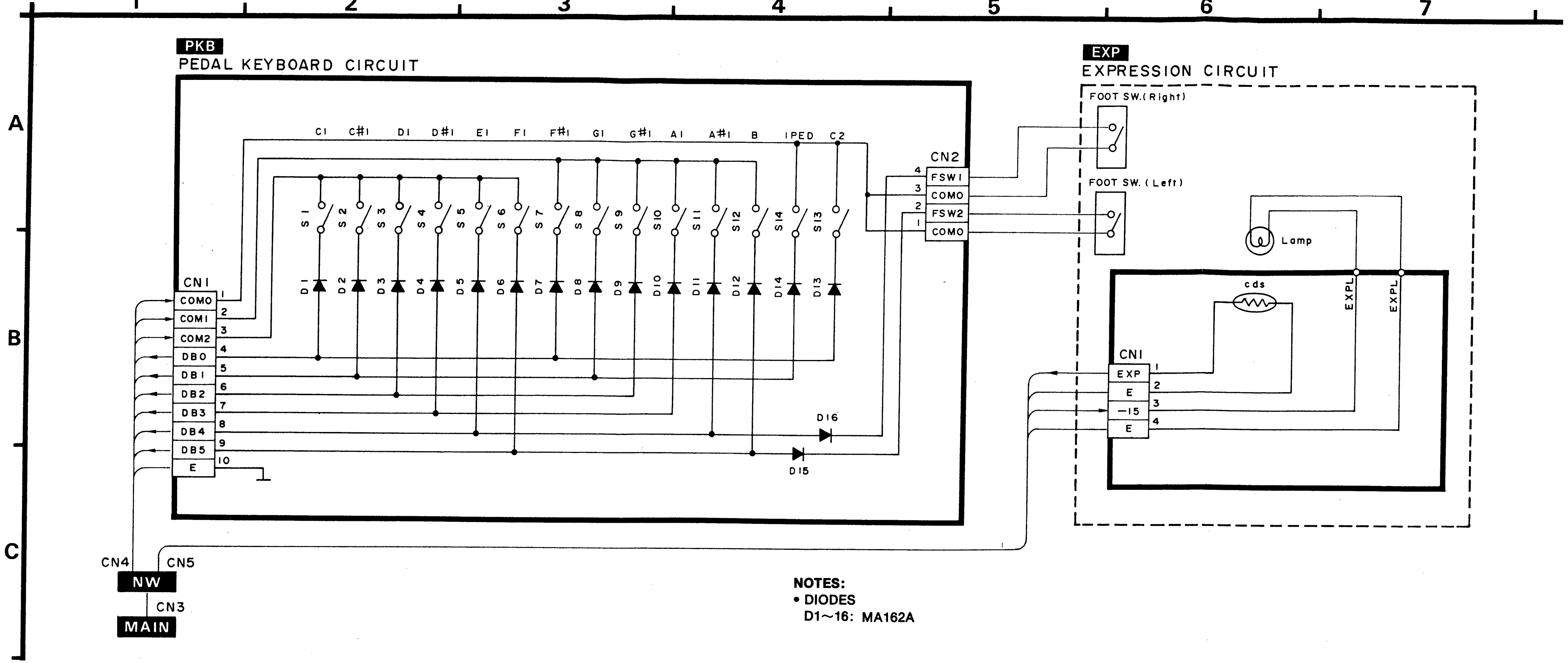
**NOTES:**
- DIODES
  D13~24: MA162A

**MKB1**

**NOTES:**
- IC
  IC1: SVIGM74LS138
- DIODES
  D25~61: MA162A

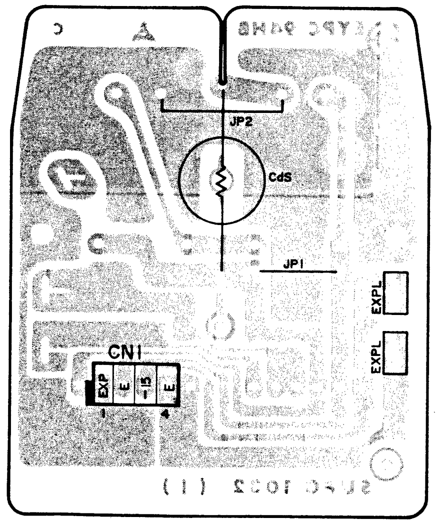
## PKB PEDAL KEYBOARD CIRCUIT DIAGRAM

## EXP EXP CIRCUIT


1
2
3
4
5
6
7
A
B
C
PKB
PEDAL KEYBOARD CIRCUIT
C1
C#1
D1
D#1
E1
F1
F#1
G1
G#1
A1
A#1
B
IPED
C2
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S14
S13
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D14
D13
D16
D15
CN1
COMO
COM1
COM2
DB0
DB1
DB2
DB3
DB4
DB5
E
CN2
FSW1
COMO
FSW2
COMO
CN4
CN5
NW
CN3
MAIN
EXP
EXPRESSION CIRCUIT
FOOT SW.(Right)
FOOT SW.(Left)
Lamp
cds
EXPL
EXPL
CN1
EXP
E
-15
E

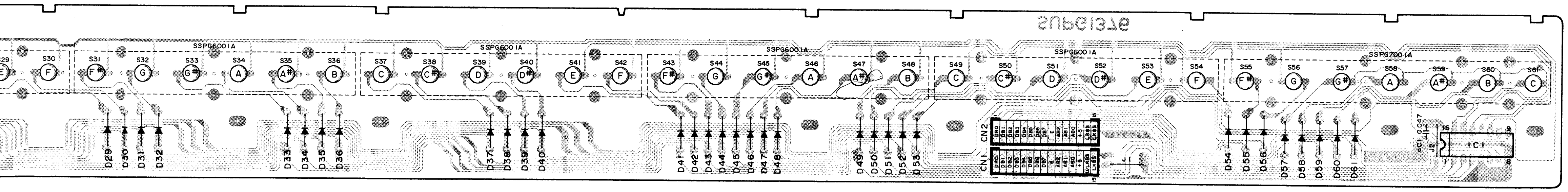
**NOTES:**
- DIODES
  D1~16: MA162A

**EXP P.C.B.** **SXPG103211**

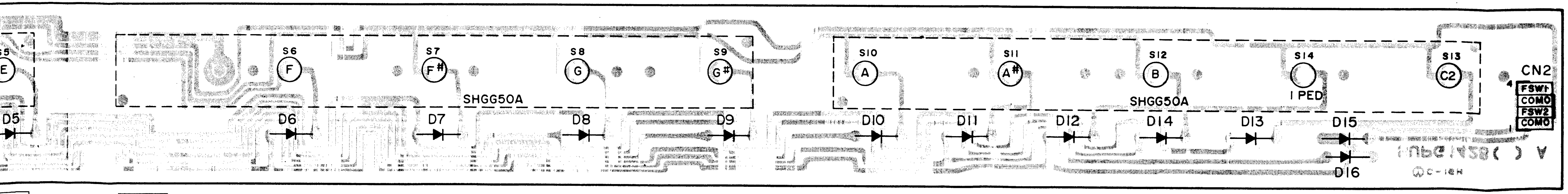

JP2
CdS
JP1
EXPL
EXPL
CN1
EXP
E
-15
E

## EYBOARD 1 CIRCUIT BOARD

**SXPG137611**


S30
S31
S32
S33
S34
S35
S36
S37
S38
S39
S40
S41
S42
S43
S44
S45
S46
S47
S48
S49
S50
S51
S52
S53
S54
S55
S56
S57
S58
S59
S60
S61
SSPG6001A
SSPG7001A
D29
D30
D31
D32
D33
D34
D35
D36
D37
D38
D39
D40
D41
D42
D43
D44
D45
D46
D47
D48
D49
D50
D51
D52
D53
D54
D55
D56
D57
D58
D59
D60
D61
CN2
CN1
eC1 0.047
IC1

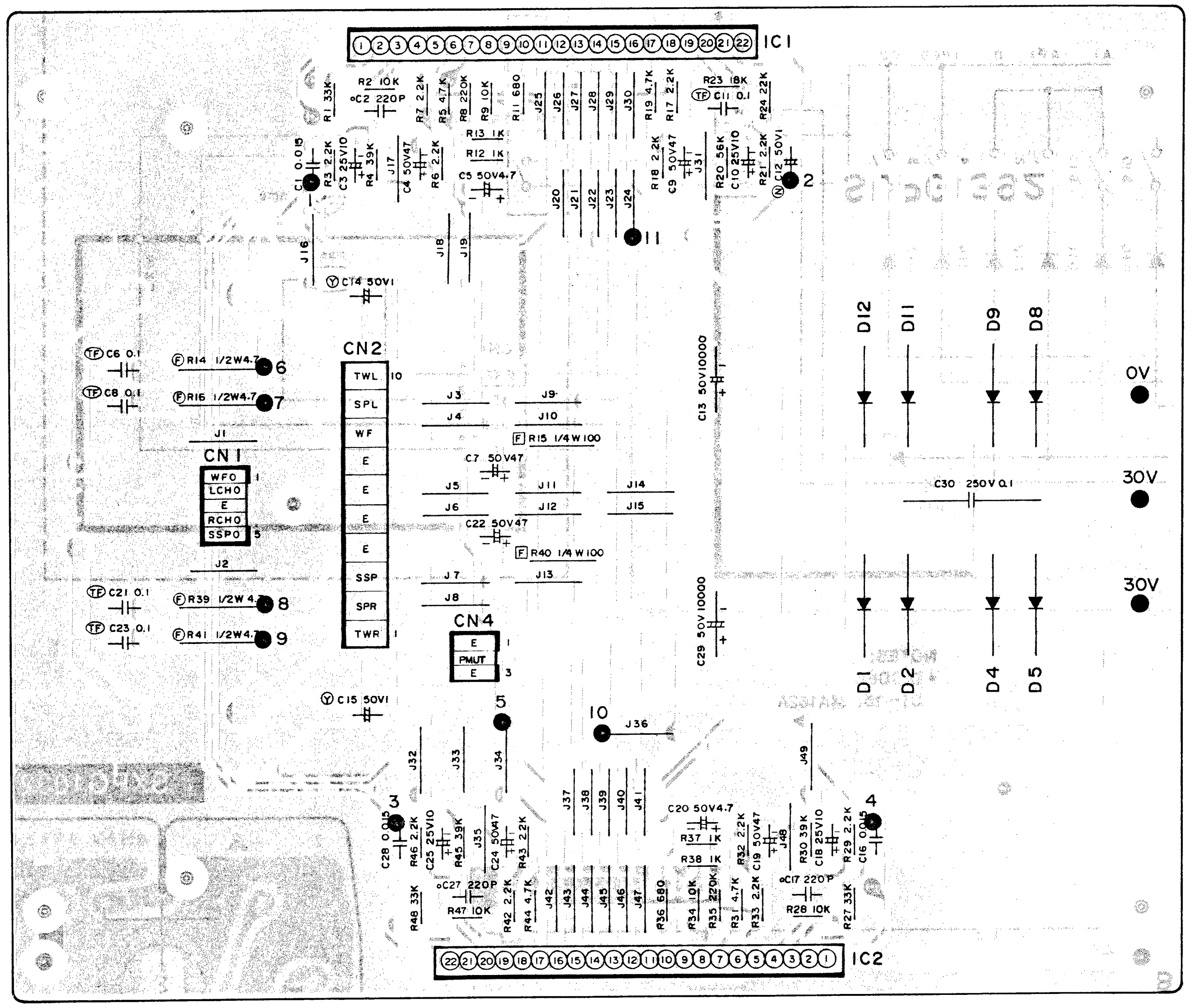
**SXPG142811**


S6
S7
S8
S9
S10
S11
S12
S14
S13
F
F#
G
G#
A
A#
B
I PED
C2
SHGG50A
SHGG50A
D5
D6
D7
D8
D9
D10
D11
D12
D14
D13
D15
D16
CN2
FSW1
COMO
FSW2
COMO

# ACP PS PA NW AC POWER SUPPLY, POWER SUPPLY, POWER AMPLIFIER, NETWORK CIRCUIT BOARD

## PA POWER AMPLIFIER CIRCUIT BOARD

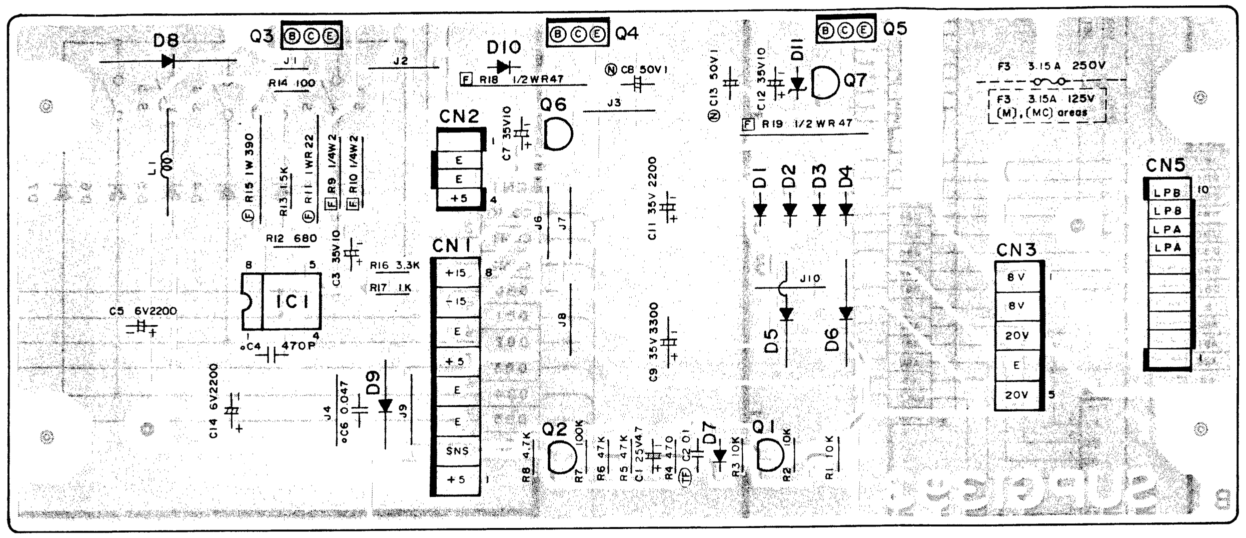
**SXPG139231**


IC1
IC2
CN1
WFO
LCHO
E
RCHO
SSPO
CN2
TWL
SPL
WF
E
E
E
SSP
SPR
TWR
CN4
E
PMUT
E
D12
D11
D9
D8
D1
D2
D4
D5
C30 250V 0.1
C13 50V10000
C29 50V10000
0V
30V
30V
1
2
3
4
5
6
7
8
9
10
11

**PA**
NOTES:
- IC'S
  - IC1, 2: SVIGS4221M2M
- DIODES
  - D1, 2, 4, 5, 8, 9, 11, 12: SVDS3V20

## PS POWER SUPPLY CIRCUIT BOARD

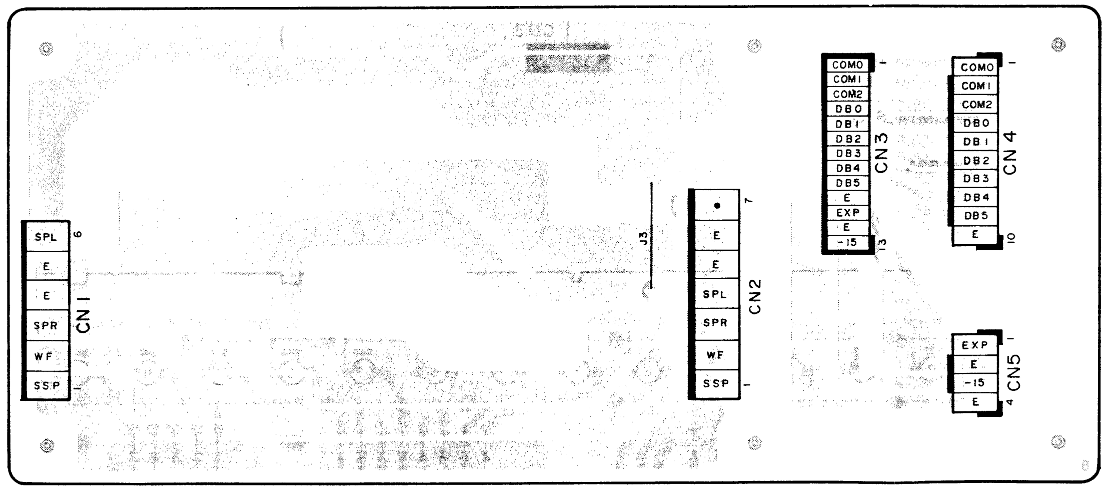
- Products for [M] [MC] areas **SXPG139351**
- Except for [M] [MC] areas **SXPG139341**


D8
Q3
D10
Q4
Q5
Q6
Q7
IC1
CN1
+15
-15
E
+5
E
E
SNS
+5
CN2
E
E
+5
CN3
8V
8V
20V
E
20V
CN5
LPB
LPB
LPA
LPA
D1
D2
D3
D4
D5
D6
D7
D9
Q1
Q2
L1
F3 3.15A 250V
F3 3.15A 125V [M], [MC] areas

**PS**
NOTES:
- IC'S
  - IC1: SV
- TRANSISTORS
  - Q1, 2: 2S
  - Q3: 2S
  - Q4: 2S
  - Q5: 2S
  - Q6, 7: 2S
- DIODES
  - D1~4: SV
  - D5, 6: SV
  - D7: M
  - D8: SV
  - D9: M
  - D10, 11: M
- FUSES
  - F3 **M** **MC**: XI
  - F5: XI

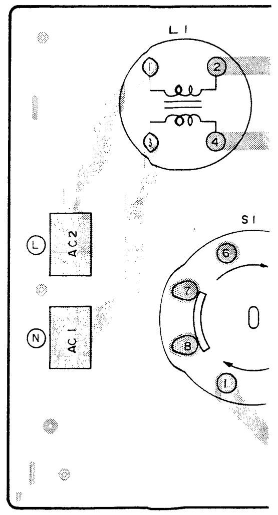
## NW NETWORK CIRCUIT BOARD

**SXPG140511E**

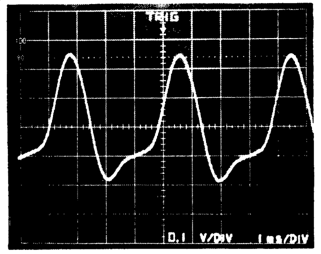

CN1
SPL
E
E
SPR
WF
SSP
CN2
E
E
SPL
SPR
WF
SSP
CN3
COM0
COM1
COM2
DB0
DB1
DB2
DB3
DB4
DB5
E
EXP
E
-15
CN4
COM0
COM1
COM2
DB0
DB1
DB2
DB3
DB4
DB5
E
CN5
EXP
E
-15
E
J3

## ACP AC POWE

- Products for [EK] [XS

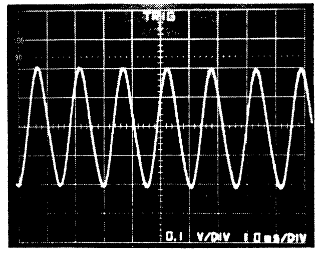

L1
S1
AC2
AC1
L
N

### ❶ LCHO



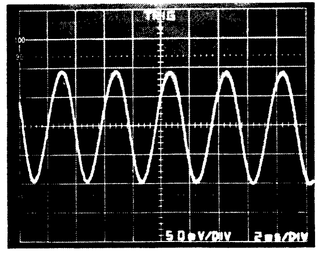
- U. Poly ................................French Horn
- Harmonic Control..............Normal
- Upper Key...........................C4
- Poly Vol, Main Vol.............Max.
- Expression .........................Max.

### ❷ WHO



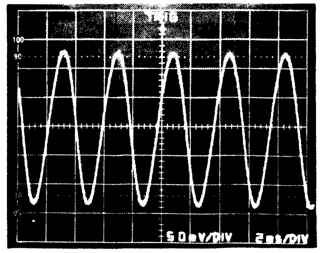
- Bass ...................................Bass 16'
- Pedal Key ...........................C2
- Bass Vol, Main Vol ............Max.
- Expression .........................Max.

### ❸ RCHO



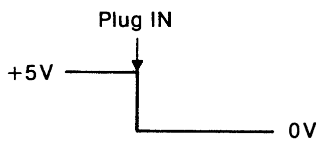
- Upper Tab..........................Flute 16'
- Upper Key...........................C4
- Tab Vol, Main Vol..............Max.
- Expression .........................Max.

### ❹ SSPO



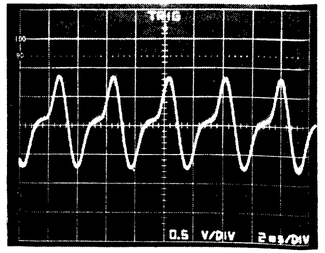
- Upper Tab..........................Flute 16'
- Upper Key...........................C4
- Tab Vol, Main Vol..............Max.
- Expression .........................Max.

### ❺ HP IN



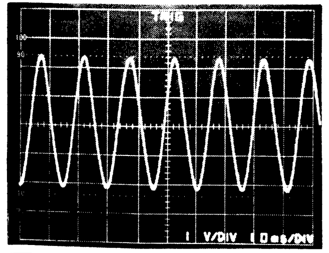
- HP Plug..............................IN

### ❻ SPL



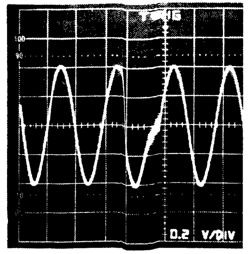
- U. Poly ................................French Horn
- Harmonic Control..............Normal
- Upper Key...........................C4
- Poly Vol, Main Vol.............Max.
- Expression .........................Max.

### ❼ WF



- Bass ...................................Bass 16'
- Pedal Key ...........................C2
- Bass Vol, Main Vol ............Max.
- Expression .........................Max.

### ❽ SSP

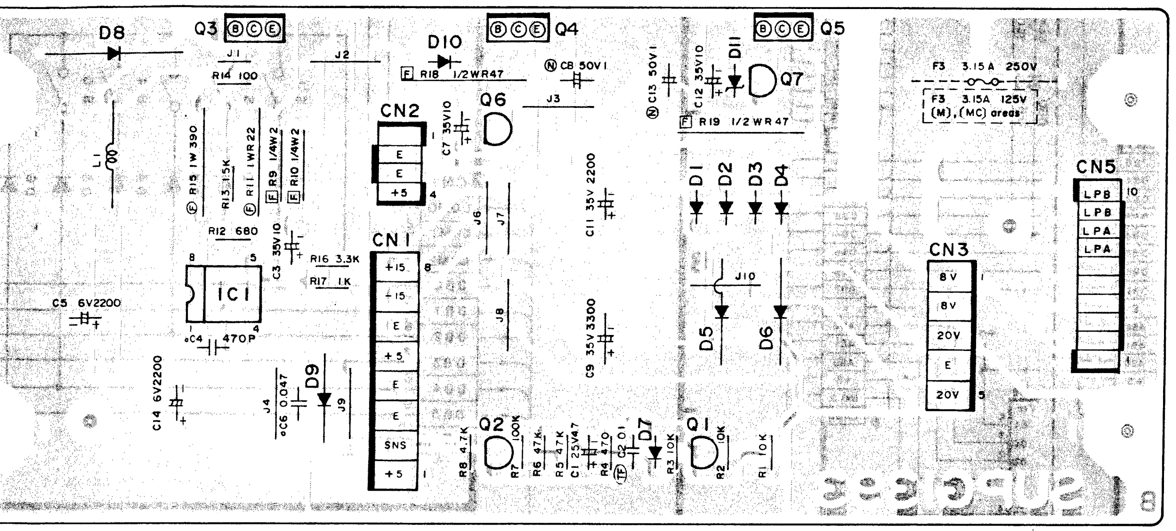


- Upper Tab.......................F
- Upper Key.......................C
- Tab Vol, Main Vol...........M
- Expression......................M

# LY, POWER AMPLIFIER, NETWORK CIRCUIT BOARD

## S POWER SUPPLY CIRCUIT BOARD

- Products for [M] [MC] areas **SXPG139351**
- Except for [M] [MC] areas **SXPG139341**


D8
Q3
J1
R14 100
J2
D10
R18 1/2WR47
Q4
C8 50V1
Q6
CN2
E
E
+5
J3
C7 35V10
C13 50V1
C12 35V10
D11
Q7
Q5
R19 1/2WR47
F3 3.15A 250V
F3 3.15A 125V (M),(MC) areas
CN5
LPB
LPB
LPA
LPA
L1
R15 1W 390
R13 1.5K
R11 1WR22
R9 1/4W2
R10 1/4W2
R12 680
C3 35V10
R16 3.3K
R17 1K
CN1
+15
+15
E
+5
E
E
SNS
+5
IC1
C4 470P
C5 6V2200
C14 6V2200
J4
C6 0.047
D9
J9
J6
J7
J8
C11 35V 2200
C9 35V 3300
D1
D2
D3
D4
J10
D5
D6
CN3
8V
8V
20V
E
20V
Q2
R8 4.7K
R7 100K
R6 47K
R5 4.7K
C1 25V47
R4 470
C2 0.01
D7
R3 10K
Q1
R2 10K
R1 10K

**PS**

**NOTES:**

- IC'S

| | |
|---|---|
| IC1: | SVIGM5291P |

- TRANSISTORS

| | |
|---|---|
| Q1, 2: | 2SC2320LFG |
| Q3: | 2SB953AQP |
| Q4: | 2SD1277A |
| Q5: | 2SB951A |
| Q6, 7: | 2SJ105GR |

- DIODES

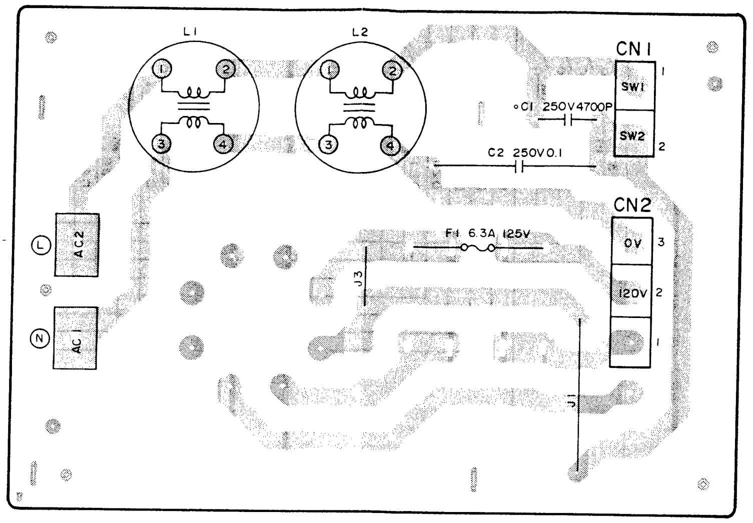
| | |
|---|---|
| D1~4: | SVDGERA1502Y |
| D5, 6: | SVDS2V20 |
| D7: | MA165TA5 |
| D8: | SVDGERC9102 |
| D9: | MA2062LF |
| D10, 11: | MA4160 |

- FUSES

| | |
|---|---|
| F3 **M** **MC**: | XBA1C31N1U100 |
| F5: | XBA2C31TB0 |

## ACP AC POWER SUPPLY CIRCUIT BOARD

- Products for [M] [MC] areas **SXPG140921**

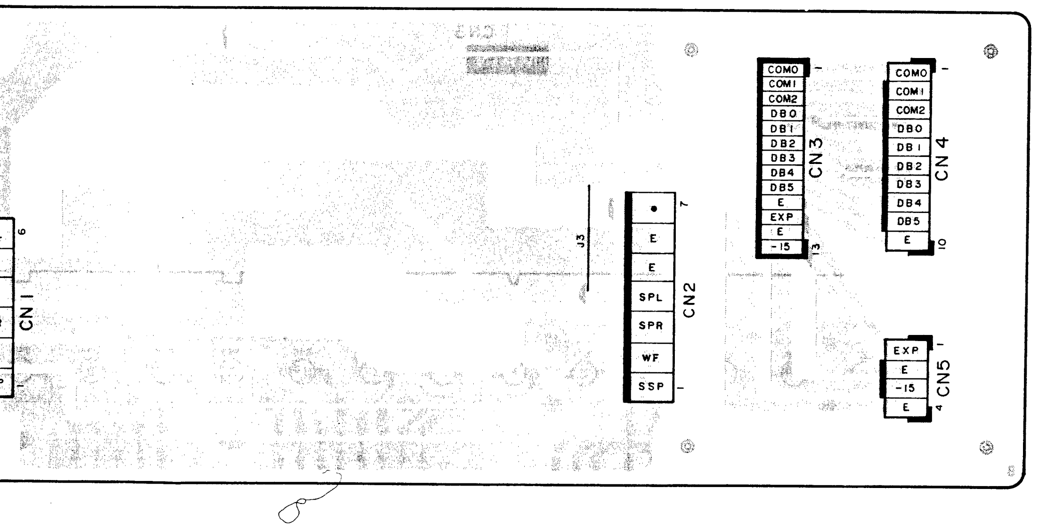

L1
L2
1
2
3
4
CN1
SW1
SW2
C1 250V4700P
C2 250V0.1
CN2
0V
120V
F1 6.3A 125V
AC2
AC1
L
N
J3
J1

**NOTE:**
- FUSE

| | |
|---|---|
| F1: | XBA1C63NU100 |

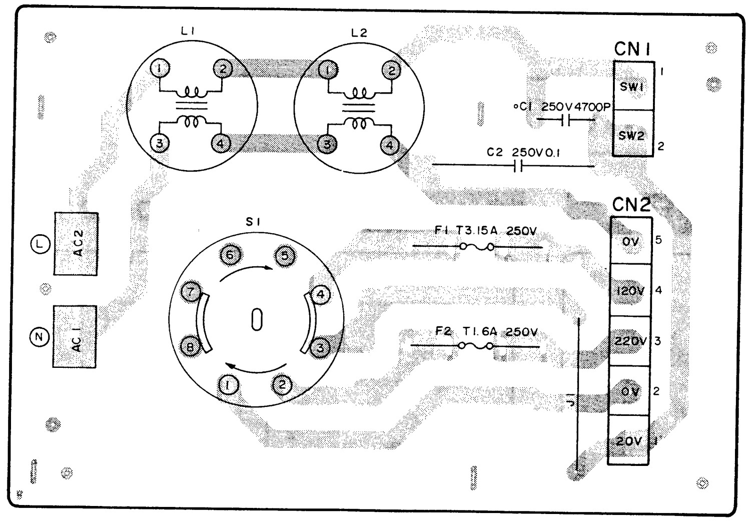
## W NETWORK CIRCUIT BOARD

**SXPG140511E**


CN1
J3
CN2
E
E
SPL
SPR
WF
SSP
CN3
COMO
COM1
COM2
DB0
DB1
DB2
DB3
DB4
DB5
E
EXP
E
-15
CN4
COMO
COM1
COM2
DB0
DB1
DB2
DB3
DB4
DB5
E
CN5
EXP
E
-15
E

## ACP AC POWER SUPPLY CIRCUIT BOARD

- Products for [EK] [XS] [XL] [XR] [X] areas **SXPG140931**

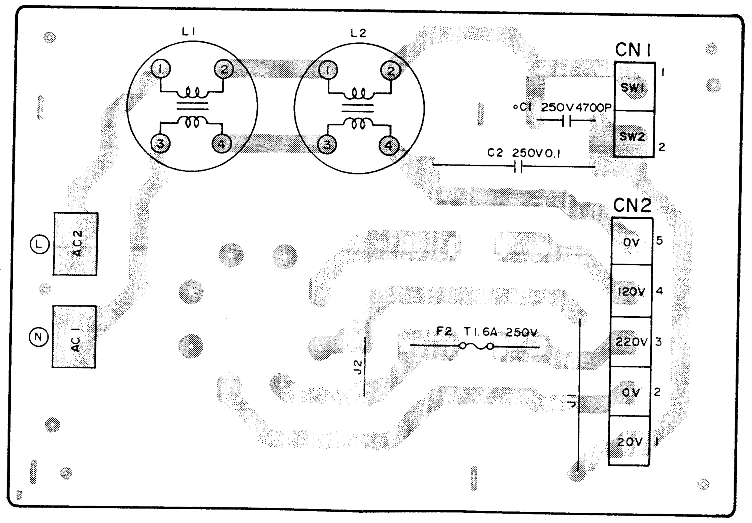

L1
L2
CN1
SW1
SW2
C1 250V4700P
C2 250V0.1
CN2
S1
F1 T3.15A 250V
F2 T1.6A 250V
0V
120V
220V
0V
20V
AC2
AC1
L
N
J1

**NOTES:**
- FUSES

| | |
|---|---|
| F1: | XBA2C31TB0 |
| F2: | XBA2C16TB0 |

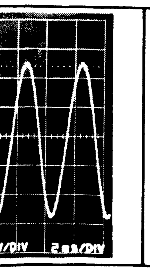
## ACP AC POWER SUPPLY CIRCUIT BOARD

- Products for European areas **SXPG140911**


L1
L2
CN1
SW1
SW2
C1 250V4700P
C2 250V0.1
CN2
0V
120V
220V
0V
20V
F2 T1.6A 250V
AC2
AC1
L
N
J2
J1

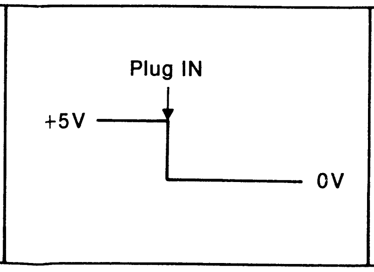
**NOTE:**
- FUSE

| | |
|---|---|
| F2: | XBA2C16TB0 |



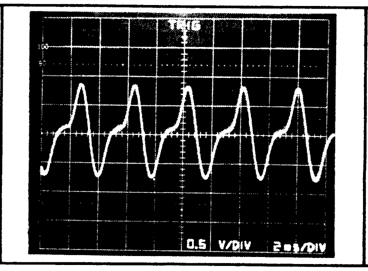
.....Flute 16'
.....C4
.....Max.
.....Max.

### ⑤ HP IN


Plug IN
+5V
0V

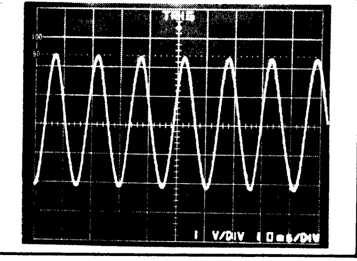
- HP Plug.................................IN

### ⑥ SPL



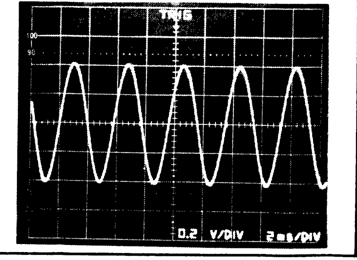
- U. Poly .................................French Horn
- Harmonic Control...............Normal
- Upper Key............................C4
- Poly Vol, Main Vol..............Max.
- Expression ..........................Max.

### ⑦ WF



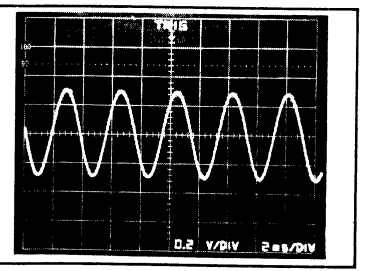
- Bass .....................................Bass 16'
- Pedal Key ............................C2
- Bass Vol, Main Vol ............Max.
- Expression ..........................Max.

### ⑧ SSP



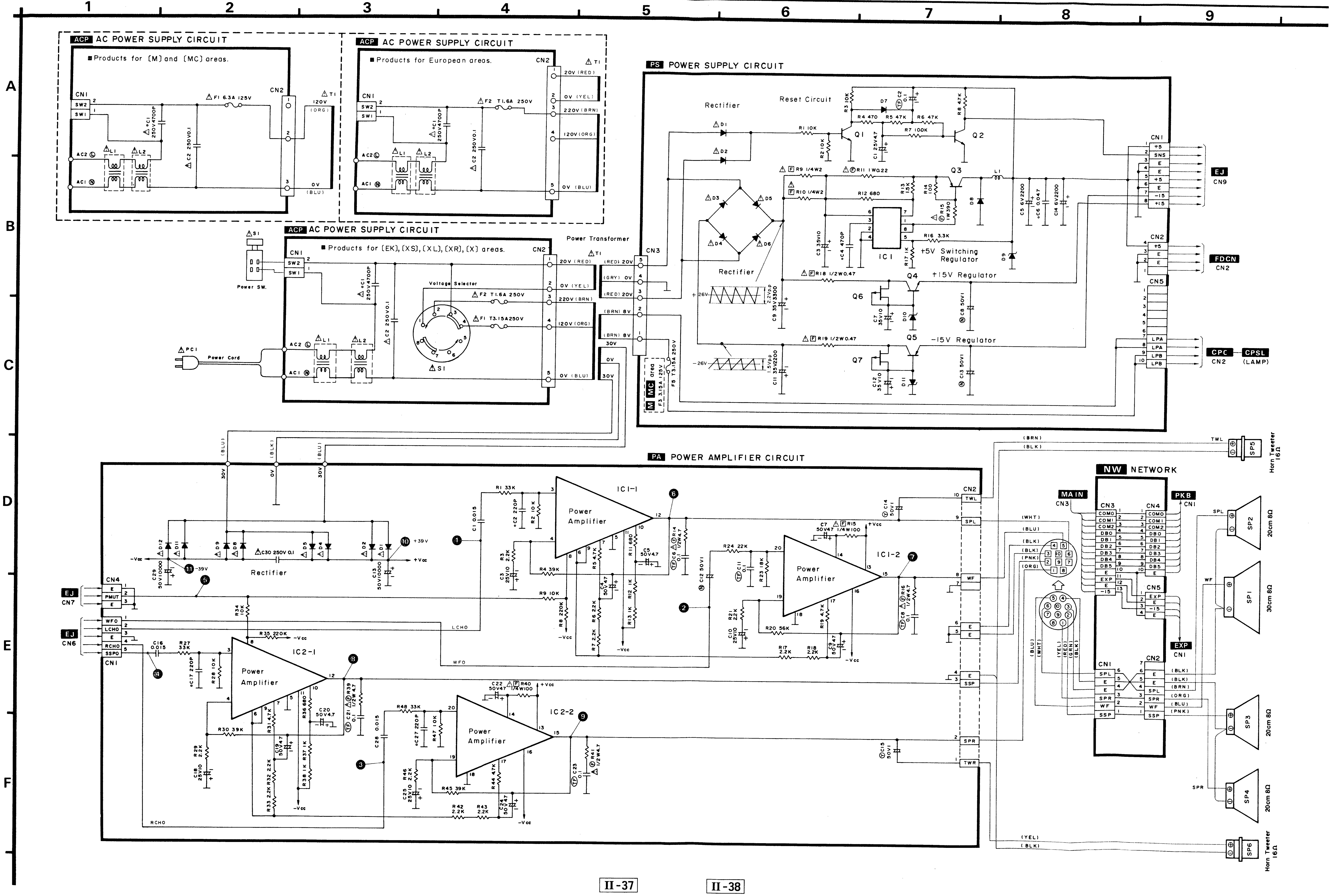
- Upper Tab............................Flute 16'
- Upper Key............................C4
- Tab Vol, Main Vol...............Max.
- Expression ..........................Max.

### ⑨ SPR



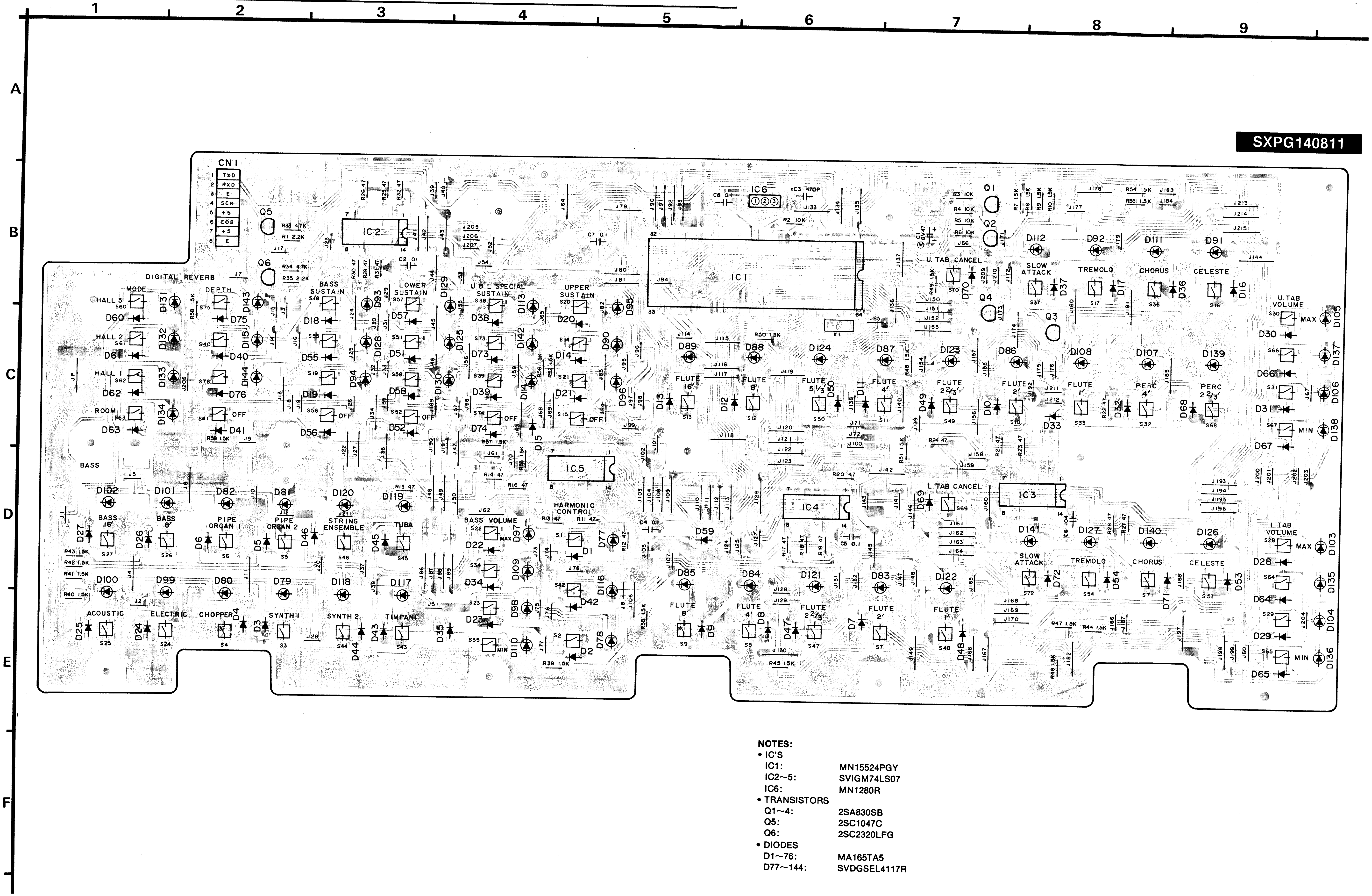
- Upper Tab............................Flute 16'
- Upper Key............................C4
- Tab Vol, Main Vol...............Max.
- Expression ..........................Max.

# ACP PS PA NW AC POWER SUPPLY, POWER SUPPLY, POWER AMPLIFIER, NETWORK CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
ACP AC POWER SUPPLY CIRCUIT
■ Products for (M) and (MC) areas.
CN1
SW2
SW1
AC2 Ⓛ
AC1 Ⓝ
△F1 6.3A 125V
△C1 250V4700P
△C2 250V0.1
△L1
△L2
CN2
△T1
120V (ORG)
0V (BLU)
ACP AC POWER SUPPLY CIRCUIT
■ Products for European areas.
△F2 T1.6A 250V
20V (RED)
0V (YEL)
220V (BRN)
120V (ORG)
0V (BLU)
ACP AC POWER SUPPLY CIRCUIT
■ Products for (EK), (XS), (XL), (XR), (X) areas.
△S1
Power SW.
△PC1
Power Cord
Voltage Selector
△F2 T1.6A 250V
△F1 T3.15A250V
△S1
Power Transformer
30V
0V
30V
M MC area
F3 3.15A 125V
F8 T3.15A 250V
PS POWER SUPPLY CIRCUIT
Rectifier
Reset Circuit
△D1
△D2
△D3
△D4
△D5
△D6
R1 10K
R2 10K
R3 10K
D7
C2 0.1
R4 470
R5 47K
R6 47K
R7 100K
R8 47K
Q1
Q2
Q3
C1 25V47
△F R9 1/4W2
△F R10 1/4W2
△F R11 1W0.22
R12 680
R13 15K
R14 100
△ R15 1W390
D8
L1
C5 6V2200
C6 0.047
C14 6V2200
IC1
C3 35V10
C4 470P
R16 3.3K
R17 1K
D9
+5V Switching Regulator
Rectifier
△F R18 1/2W0.47
Q4
+15V Regulator
Q6
C9 35V3300
+26V
12Vp-p
C7 35V10
D10
C8 50V1
△F R19 1/2W0.47
Q5
-15V Regulator
Q7
-26V
15Vp-p
C11 35V2200
C12 35V10
D11
C13 50V1
CN1
+5
SNS
E
E
+5
E
-15
+15
EJ
CN9
CN2
+5
E
E
FDCN
CN2
CN5
LPA
LPA
LPB
LPB
CPC
CPSL
CN2
(LAMP)
CN3
(RED) 20V
(GRY) 0V
(RED) 20V
(BRN) 8V
(BRN) 8V
PA POWER AMPLIFIER CIRCUIT
(BLU)
(BLK)
(BLU)
30V
0V
30V
D12
D11
D9
D8
△C30 250V 0.1
D5
D4
D2
D1
+39V
-39V
-Vcc
+Vcc
C29 50V10000
C13 50V10000
Rectifier
EJ
CN7
CN4
E
PMUT
E
EJ
CN6
WFO
LCHO
E
RCHO
SSPO
CN1
R34 10K
R35 220K
C16 0.015
R27 33K
C17 220P
R28 10K
IC2-1
Power Amplifier
R30 39K
R29 2.2K
C18 25V10
R31 4.7K
R33 2.2K
R32 2.2K
C19 50V47
R37 1K
R38 1K
R36 680
C20 50V4.7
C21 0.1
△ R39 1/2W4.7
C28 0.015
R48 33K
C27 220P
R47 10K
C22 50V47
△F R40 1/4W100
IC2-2
Power Amplifier
R46 2.2K
C25 25V10
R45 39K
R42 2.2K
R43 2.2K
R44 4.7K
C24 50V47
C23 0.1
R41 1/2W4.7
R1 33K
C1 0.015
C2 220P
R2 10K
R3 2.2K
C3 25V10
R4 39K
R9 10K
R8 220K
IC1-1
Power Amplifier
R5 4.7K
R7 2.2K
C4 50V47
R11 680
R12 1K
R13 1K
C5 50V4.7
C6 0.1
R14 1/2W4.7
C12 50V1
R24 22K
C11 0.1
R23 18K
C7 50V47
△F R15 1/4W100
IC1-2
Power Amplifier
R21 22K
C10 25V10
R20 56K
R19 4.7K
R17 2.2K
R18 2.2K
C9 50V47
C8 0.1
△ R16 1/2W4.7
C14 50V1
C15 50V1
LCHO
WFO
RCHO
CN2
TWL
SPL
WF
E
E
E
SSP
SPR
TWR
NW NETWORK
MAIN
CN3
PKB
CN1
CN3
COM0
COM1
COM2
DB0
DB1
DB2
DB3
DB4
DB5
E
EXP
E
-15
CN4
COM0
COM1
COM2
DB0
DB1
DB2
DB3
DB4
DB5
E
CN5
EXP
E
-15
E
EXP
CN1
CN1
SPL
E
E
SPR
WF
SSP
CN2
E
E
SPL
SPR
WF
SSP
(BRN)
(BLK)
(WHT)
(BLU)
(BLK)
(BLK)
(PNK)
(ORG)
(BLU)
(WHT)
(YEL)
(RED)
(BLK)
(BLK)
(BLK)
(BRN)
(ORG)
(BLU)
(PNK)
(YEL)
(BLK)
TWL
SP5
Horn Tweeter 16Ω
SPL
SP2
20cm 8Ω
WF
SP1
30cm 8Ω
SP3
20cm 8Ω
SPR
SP4
20cm 8Ω
SP6
Horn Tweeter 16Ω
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪

**CPL**

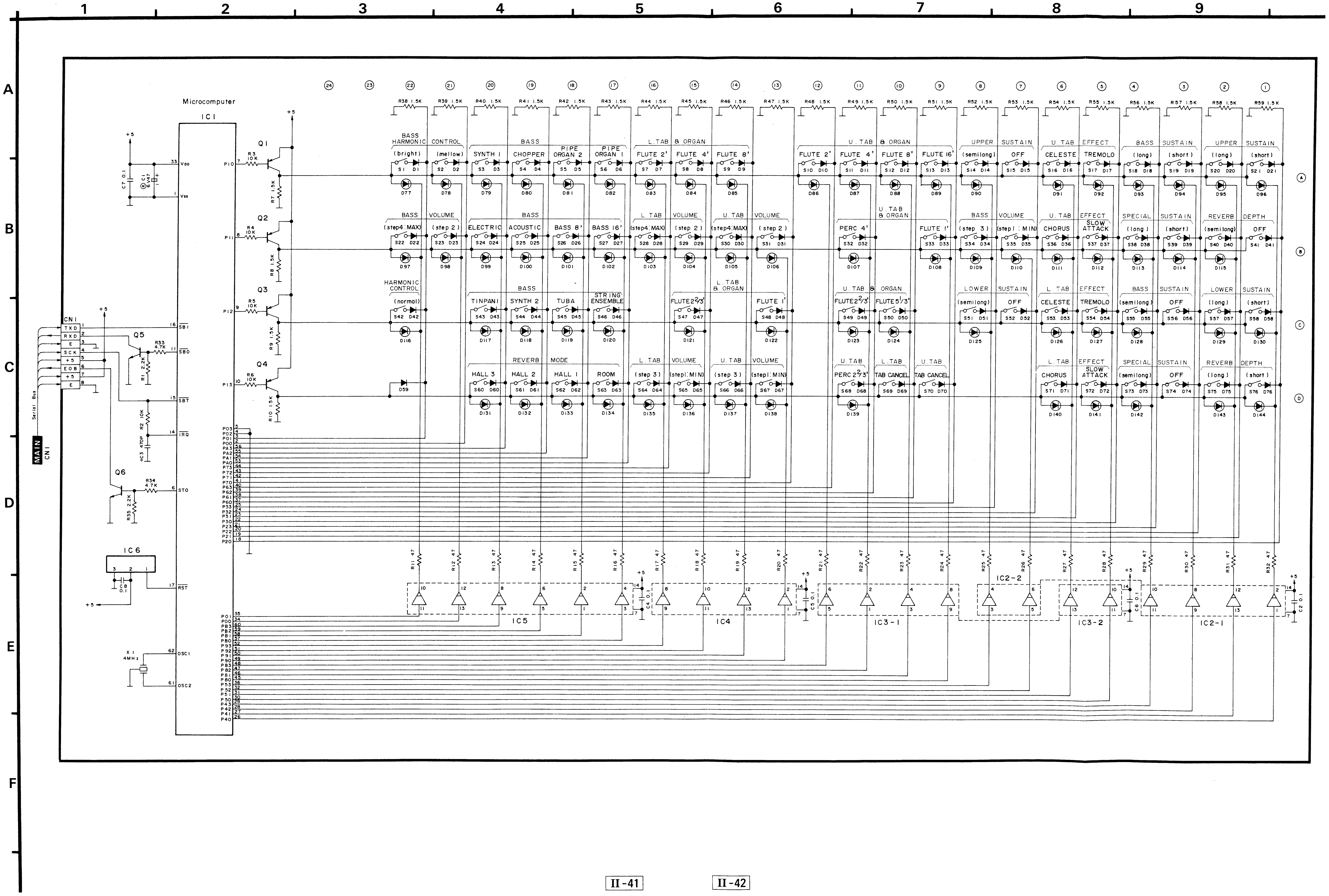
# UPPER CONTROL PANEL LEFT CIRCUIT BOARD

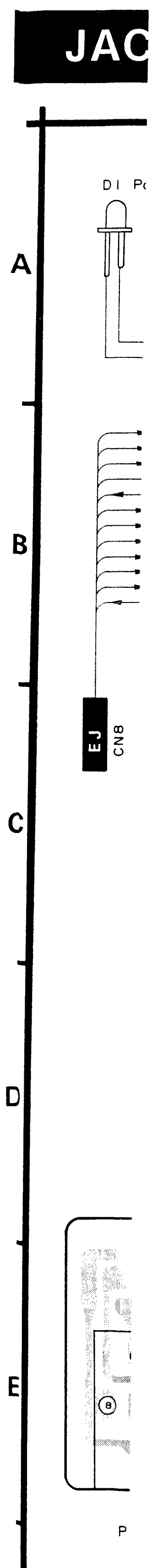

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SXPG140811
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
IC1
IC2
IC3
IC4
IC5
IC6
Q1
Q2
Q3
Q4
Q5
Q6
X1
DIGITAL REVERB
MODE
DEPTH
HALL 3
HALL 2
HALL 1
ROOM
OFF
BASS SUSTAIN
LOWER SUSTAIN
U & L SPECIAL SUSTAIN
UPPER SUSTAIN
U. TAB CANCEL
SLOW ATTACK
TREMOLO
CHORUS
CELESTE
U. TAB VOLUME
MAX
MIN
FLUTE 16'
FLUTE 8'
FLUTE 5 1/3'
FLUTE 4'
FLUTE 2 2/3'
FLUTE 2'
FLUTE 1'
PERC 4'
PERC 2 2/3'
BASS
BASS 16'
BASS 8'
PIPE ORGAN 1
PIPE ORGAN 2
STRING ENSEMBLE
TUBA
BASS VOLUME
HARMONIC CONTROL
L. TAB CANCEL
L. TAB VOLUME
ACOUSTIC
ELECTRIC
CHOPPER
SYNTH 1
SYNTH 2
TIMPANI

**NOTES:**

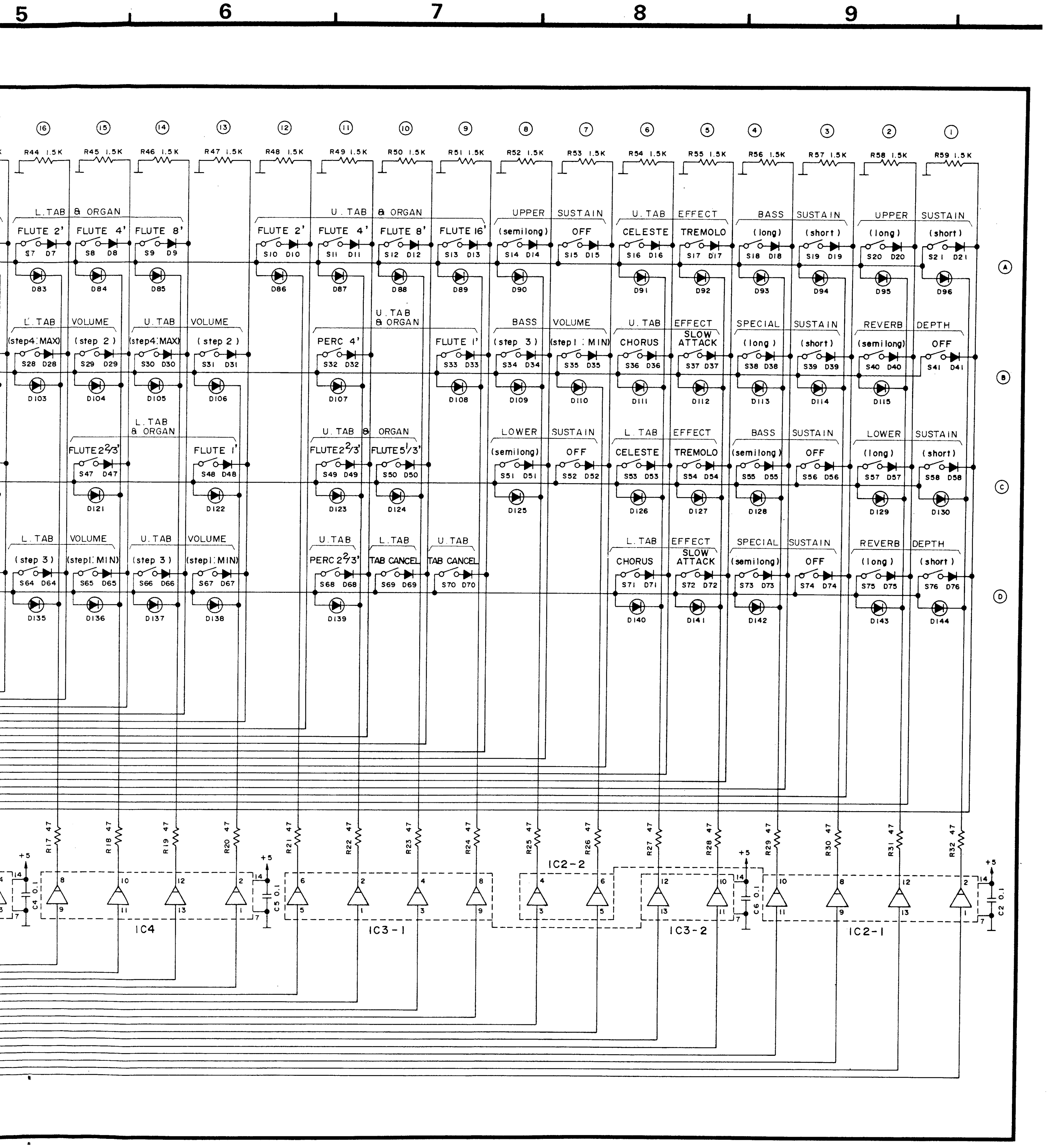
- IC'S
  - IC1: MN15524PGY
  - IC2~5: SVIGM74LS07
  - IC6: MN1280R
- TRANSISTORS
  - Q1~4: 2SA830SB
  - Q5: 2SC1047C
  - Q6: 2SC2320LFG
- DIODES
  - D1~76: MA165TA5
  - D77~144: SVDGSEL4117R

# UPPER CONTROL PANEL LEFT CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Microcomputer
IC1
+5
C7 0.1
C1 6V47
33 VDD
1 Vss
Q1
Q2
Q3
Q4
Q5
Q6
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.5K
R8 1.5K
R9 1.5K
R10 1.5K
P10
P11
P12
P13
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
Serial Bus
MAIN CN1
16 SB1
11 SB0
15 SBT
14 IRQ
6 STO
R33 4.7K
R1 2.2K
R2 10K
C3 470P
R34 4.7K
R35 2.2K
IC6
C8 0.1
17 RST
X1 4MHz
62 OSC1
61 OSC2
P03 P02 P01 P00 PA3 PA2 PA1 PA0 P73 P72 P71 P70 P63 P62 P61 P60 P33 P32 P31 P30 P23 P22 P21 P20
P01 P00 PB3 PB2 PB1 PB0 P93 P92 P91 P90 P83 P82 P81 P80 P53 P52 P51 P50 P43 P42 P41 P40
㉔ ㉓ ㉒ ㉑ ⑳ ⑲ ⑱ ⑰ ⑯ ⑮ ⑭ ⑬ ⑫ ⑪ ⑩ ⑨ ⑧ ⑦ ⑥ ⑤ ④ ③ ② ①
R38 1.5K R39 1.5K R40 1.5K R41 1.5K R42 1.5K R43 1.5K R44 1.5K R45 1.5K R46 1.5K R47 1.5K R48 1.5K R49 1.5K R50 1.5K R51 1.5K R52 1.5K R53 1.5K R54 1.5K R55 1.5K R56 1.5K R57 1.5K R58 1.5K R59 1.5K
BASS HARMONIC CONTROL
(bright) S1 D1
(mellow) S2 D2
SYNTH 1 S3 D3
BASS
CHOPPER S4 D4
PIPE ORGAN 2 S5 D5
PIPE ORGAN 1 S6 D6
L.TAB & ORGAN
FLUTE 2' S7 D7
FLUTE 4' S8 D8
FLUTE 8' S9 D9
U.TAB & ORGAN
FLUTE 2' S10 D10
FLUTE 4' S11 D11
FLUTE 8' S12 D12
FLUTE 16' S13 D13
UPPER SUSTAIN
(semilong) S14 D14
OFF S15 D15
U.TAB EFFECT
CELESTE S16 D16
TREMOLO S17 D17
BASS SUSTAIN
(long) S18 D18
(short) S19 D19
UPPER SUSTAIN
(long) S20 D20
(short) S21 D21
D77 D78 D79 D80 D81 D82 D83 D84 D85 D86 D87 D88 D89 D90 D91 D92 D93 D94 D95 D96
BASS VOLUME
(step4:MAX) S22 D22
(step 2) S23 D23
BASS
ELECTRIC S24 D24
ACOUSTIC S25 D25
BASS 8' S26 D26
BASS 16' S27 D27
L.TAB VOLUME
(step4:MAX) S28 D28
(step 2) S29 D29
U.TAB VOLUME
(step4:MAX) S30 D30
(step 2) S31 D31
PERC 4' S32 D32
U.TAB & ORGAN
FLUTE 1' S33 D33
BASS VOLUME
(step 3) S34 D34
(step1:MIN) S35 D35
U.TAB EFFECT
CHORUS S36 D36
SLOW ATTACK S37 D37
SPECIAL SUSTAIN
(long) S38 D38
(short) S39 D39
REVERB DEPTH
(semilong) S40 D40
OFF S41 D41
D97 D98 D99 D100 D101 D102 D103 D104 D105 D106 D107 D108 D109 D110 D111 D112 D113 D114 D115
HARMONIC CONTROL
(normal) S42 D42
BASS
TINPANI S43 D43
SYNTH 2 S44 D44
TUBA S45 D45
STRING ENSEMBLE S46 D46
L.TAB & ORGAN
FLUTE 2 2/3' S47 D47
FLUTE 1' S48 D48
U.TAB & ORGAN
FLUTE 2 2/3' S49 D49
FLUTE 5 1/3' S50 D50
LOWER SUSTAIN
(semilong) S51 D51
OFF S52 D52
L.TAB EFFECT
CELESTE S53 D53
TREMOLO S54 D54
BASS SUSTAIN
(semilong) S55 D55
OFF S56 D56
LOWER SUSTAIN
(long) S57 D57
(short) S58 D58
D116 D117 D118 D119 D120 D121 D122 D123 D124 D125 D126 D127 D128 D129 D130
D59
REVERB MODE
HALL 3 S60 D60
HALL 2 S61 D61
HALL 1 S62 D62
ROOM S63 D63
L.TAB VOLUME
(step 3) S64 D64
(step1:MIN) S65 D65
U.TAB VOLUME
(step 3) S66 D66
(step1:MIN) S67 D67
U.TAB
PERC 2 2/3' S68 D68
L.TAB
TAB CANCEL S69 D69
U.TAB
TAB CANCEL S70 D70
L.TAB EFFECT
CHORUS S71 D71
SLOW ATTACK S72 D72
SPECIAL SUSTAIN
(semilong) S73 D73
OFF S74 D74
REVERB DEPTH
(long) S75 D75
(short) S76 D76
D131 D132 D133 D134 D135 D136 D137 D138 D139 D140 D141 D142 D143 D144
Ⓐ Ⓑ Ⓒ Ⓓ
R11 47 R12 47 R13 47 R14 47 R15 47 R16 47 R17 47 R18 47 R19 47 R20 47 R21 47 R22 47 R23 47 R24 47 R25 47 R26 47 R27 47 R28 47 R29 47 R30 47 R31 47 R32 47
IC5
IC4
IC3-1
IC2-2
IC3-2
IC2-1
C4 0.1
C5 0.1
C6 0.1
C2 0.1

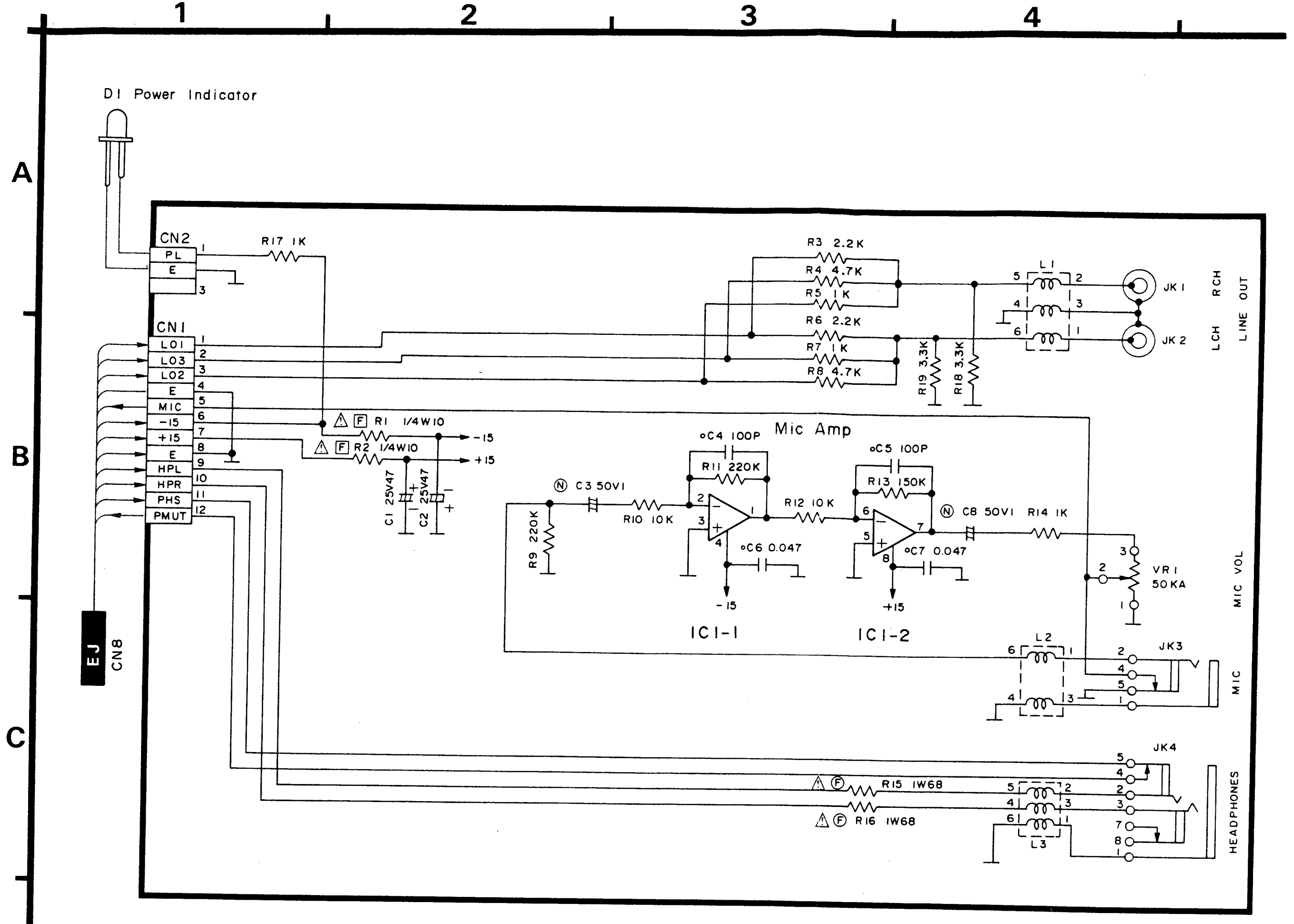

JAC
D1
EJ CN8
⑧
P

## RAM


5
6
7
8
9
L.TAB & ORGAN
FLUTE 2'
FLUTE 4'
FLUTE 8'
U.TAB & ORGAN
FLUTE 16'
UPPER SUSTAIN
(semilong)
OFF
U.TAB EFFECT
CELESTE
TREMOLO
BASS SUSTAIN
(long)
(short)
L.TAB VOLUME
(step4:MAX)
(step 2)
U.TAB VOLUME
U.TAB & ORGAN
PERC 4'
FLUTE 1'
BASS VOLUME
(step 3)
(step1:MIN)
U.TAB EFFECT
CHORUS
SLOW ATTACK
SPECIAL SUSTAIN
REVERB DEPTH
L.TAB & ORGAN
FLUTE 2 2/3'
FLUTE 5 1/3'
LOWER SUSTAIN
(semilong)
L.TAB EFFECT
BASS SUSTAIN
L.TAB VOLUME
U.TAB
PERC 2 2/3'
L.TAB
TAB CANCEL
U.TAB
SPECIAL
SUSTAIN
REVERB DEPTH
R44 1.5K
R45 1.5K
R46 1.5K
R47 1.5K
R48 1.5K
R49 1.5K
R50 1.5K
R51 1.5K
R52 1.5K
R53 1.5K
R54 1.5K
R55 1.5K
R56 1.5K
R57 1.5K
R58 1.5K
R59 1.5K
R17 47
R18 47
R19 47
R20 47
R21 47
R22 47
R23 47
R24 47
R25 47
R26 47
R27 47
R28 47
R29 47
R30 47
R31 47
R32 47
IC4
IC3-1
IC2-2
IC3-2
IC2-1
C4 0.1
C5 0.1
C6 0.1
C2 0.1
+5
Ⓐ
Ⓑ
Ⓒ
Ⓓ

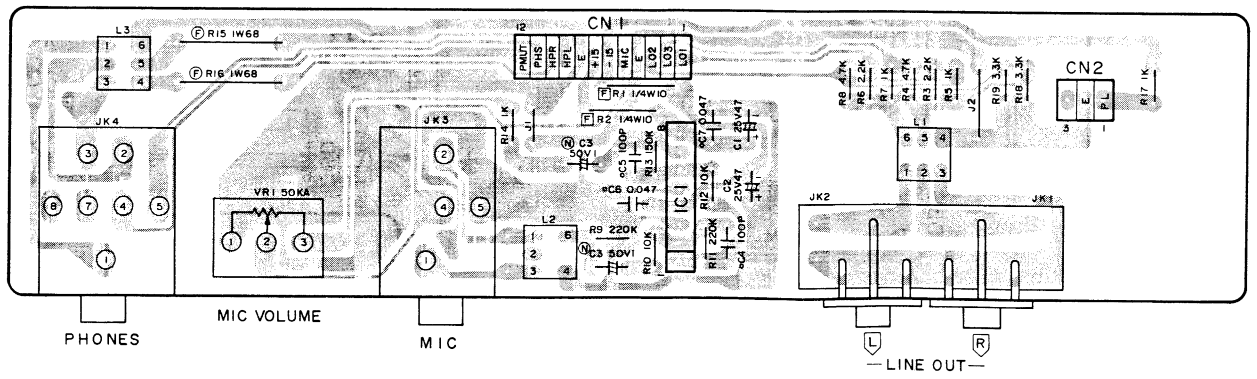
**JACK**

# JACK CIRCUIT


1
2
3
4
A
B
C
D1 Power Indicator
CN2
PL
E
R17 1K
CN1
LO1
LO3
LO2
E
MIC
-15
+15
E
HPL
HPR
PHS
PMUT
EJ
CN8
R3 2.2K
R4 4.7K
R5 1K
R6 2.2K
R7 1K
R8 4.7K
R19 3.3K
R18 3.3K
L1
JK1
JK2
RCH
LCH
LINE OUT
R1 1/4W10
R2 1/4W10
-15
+15
C1 25V47
C2 25V47
Mic Amp
C4 100P
R11 220K
C5 100P
R13 150K
C3 50V1
R9 220K
R10 10K
R12 10K
C6 0.047
C7 0.047
C8 50V1
R14 1K
VR1 50KA
MIC VOL
IC1-1
IC1-2
L2
JK3
MIC
JK4
R15 1W68
R16 1W68
L3
HEADPHONES

D
E
F

**SXPG140511B**

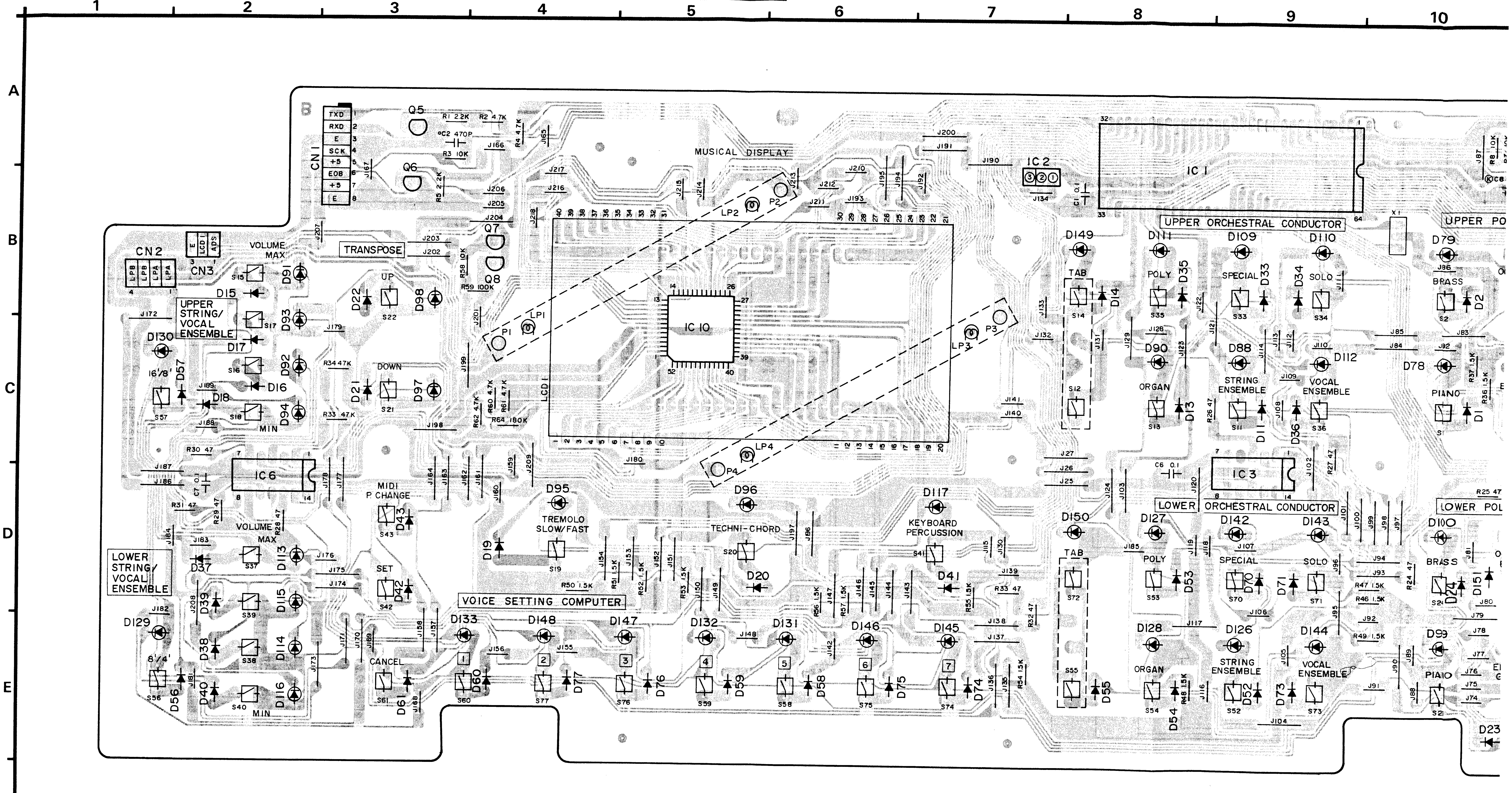

L3
R15 1W68
R16 1W68
CN1
PMUT
PHS
HPR
HPL
E
+15
-15
MIC
E
LO2
LO3
LO1
R1 1/4W10
R2 1/4W10
JK4
JK3
VR1 50KA
L2
IC1
C3 50V1
C5 100P
R13 150K
C6 0.047
R9 220K
R10 10K
R11 220K
C4 100P
R12 10K
C7 0.047
C1 25V47
C2 25V47
R14 1K
J1
R8 4.7K
R6 2.2K
R7 1K
R4 4.7K
R3 2.2K
R5 1K
J2
R19 3.3K
R18 3.3K
R17 1K
CN2
L1
JK2
JK1
PHONES
MIC VOLUME
MIC
L
R
—LINE OUT—

**NOTES:**
- IC

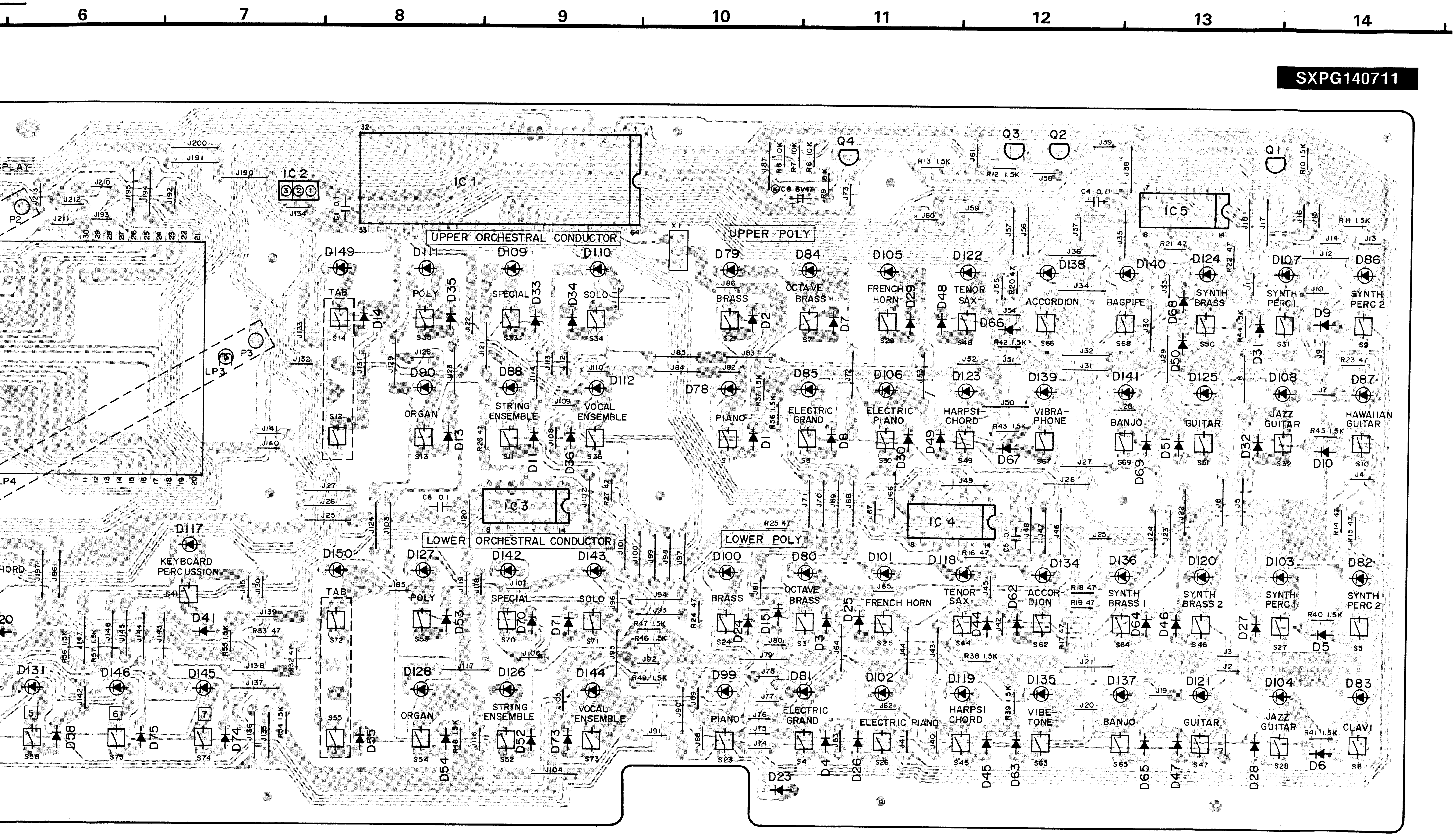
IC1: SVIGM5218L

**CPC**

# UPPER CONTROL PANEL CENTER CIRCUIT BOARD


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
Q5
Q6
Q7
Q8
R1 2.2K
R2 4.7K
C2 470P
R3 10K
R4 4.7K
R5 2.2K
MUSICAL DISPLAY
IC2
IC1
IC10
IC6
IC3
CN2
LPB
LPB
LPA
LPA
CN3
E
LCD1
ADS
LCD1
VOLUME MAX
MIN
TRANSPOSE
UP
DOWN
UPPER STRING/ VOCAL ENSEMBLE
16'/8'
LP1
LP2
LP3
LP4
P1
P2
P3
P4
UPPER ORCHESTRAL CONDUCTOR
TAB
POLY
SPECIAL
SOLO
ORGAN
STRING ENSEMBLE
VOCAL ENSEMBLE
UPPER PO
BRASS
PIANO
MIDI P. CHANGE
TREMOLO SLOW/FAST
TECHNI-CHORD
KEYBOARD PERCUSSION
LOWER ORCHESTRAL CONDUCTOR
LOWER POL
LOWER STRING/ VOCAL ENSEMBLE
SET
CANCEL
VOICE SETTING COMPUTER
8'/4'
1
2
3
4
5
6
7
X1

NOTE
• IC'S
IC1
IC2
IC3·
IC1(
• TRA
Q1-
Q5:
Q6-


6
7
8
9
10
11
12
13
14
SXPG140711
IC 1
IC 2
IC 3
IC 4
IC 5
Q1
Q2
Q3
Q4
X1
P2
P3
LP3
LP4
UPPER ORCHESTRAL CONDUCTOR
LOWER ORCHESTRAL CONDUCTOR
UPPER POLY
LOWER POLY
TAB
POLY
SPECIAL
SOLO
ORGAN
STRING ENSEMBLE
VOCAL ENSEMBLE
BRASS
OCTAVE BRASS
FRENCH HORN
TENOR SAX
ACCORDION
BAGPIPE
SYNTH BRASS
SYNTH PERC 1
SYNTH PERC 2
PIANO
ELECTRIC GRAND
ELECTRIC PIANO
HARPSICHORD
VIBRAPHONE
BANJO
GUITAR
JAZZ GUITAR
HAWAIIAN GUITAR
KEYBOARD PERCUSSION
SYNTH BRASS 1
SYNTH BRASS 2
VIBE-TONE
CLAVI
5
6
7

**NOTES:**

- IC'S

| | |
|---|---|
| IC1: | MN15524PGY |
| IC2: | MN1280R |
| IC3~6: | SVIGM74LS07 |
| IC10: | SVIGUPD7225 |

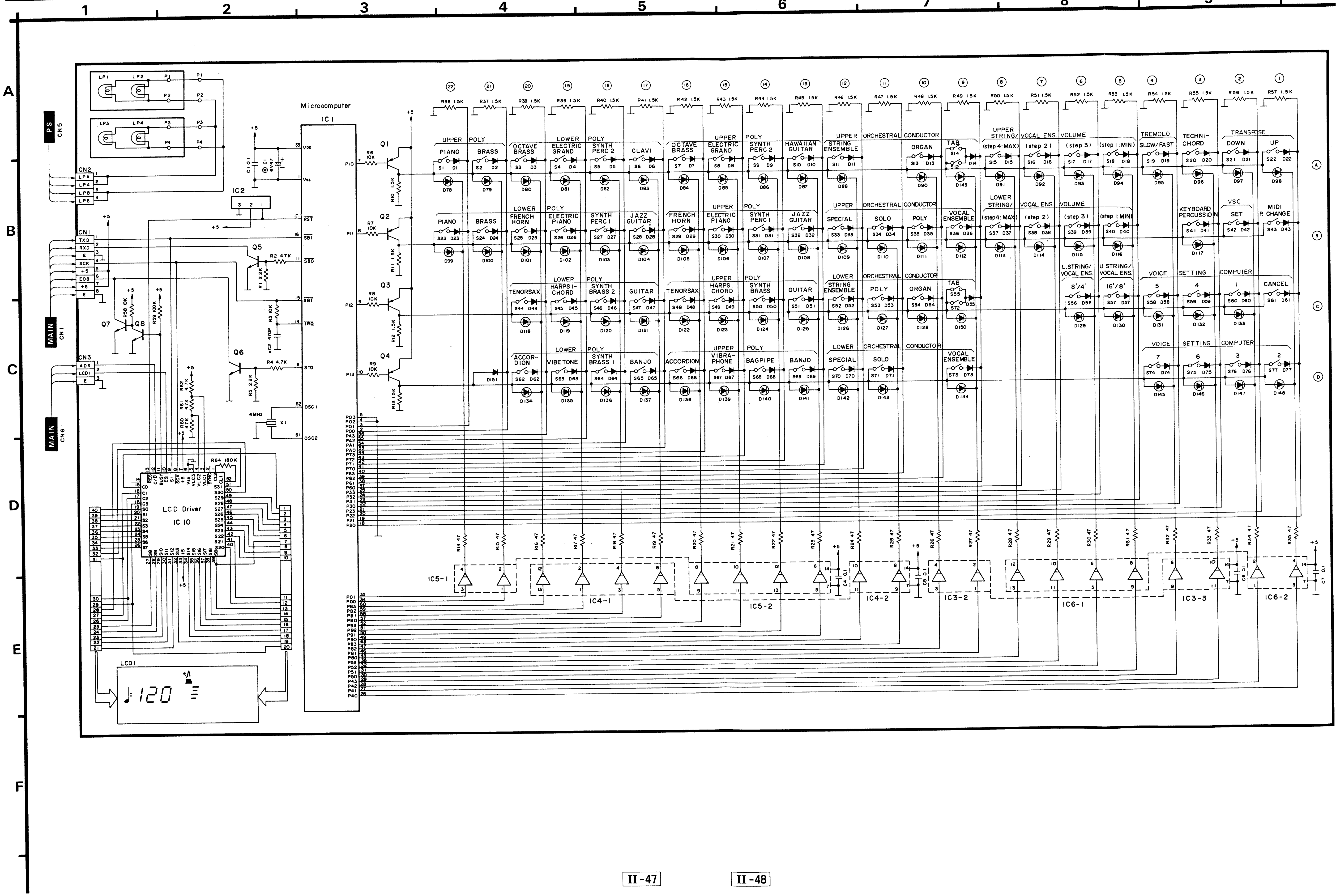
- TRANSISTORS

| | |
|---|---|
| Q1~4: | 2SA830SB |
| Q5: | 2SC1047C |
| Q6~8: | 2SC2320LFG |

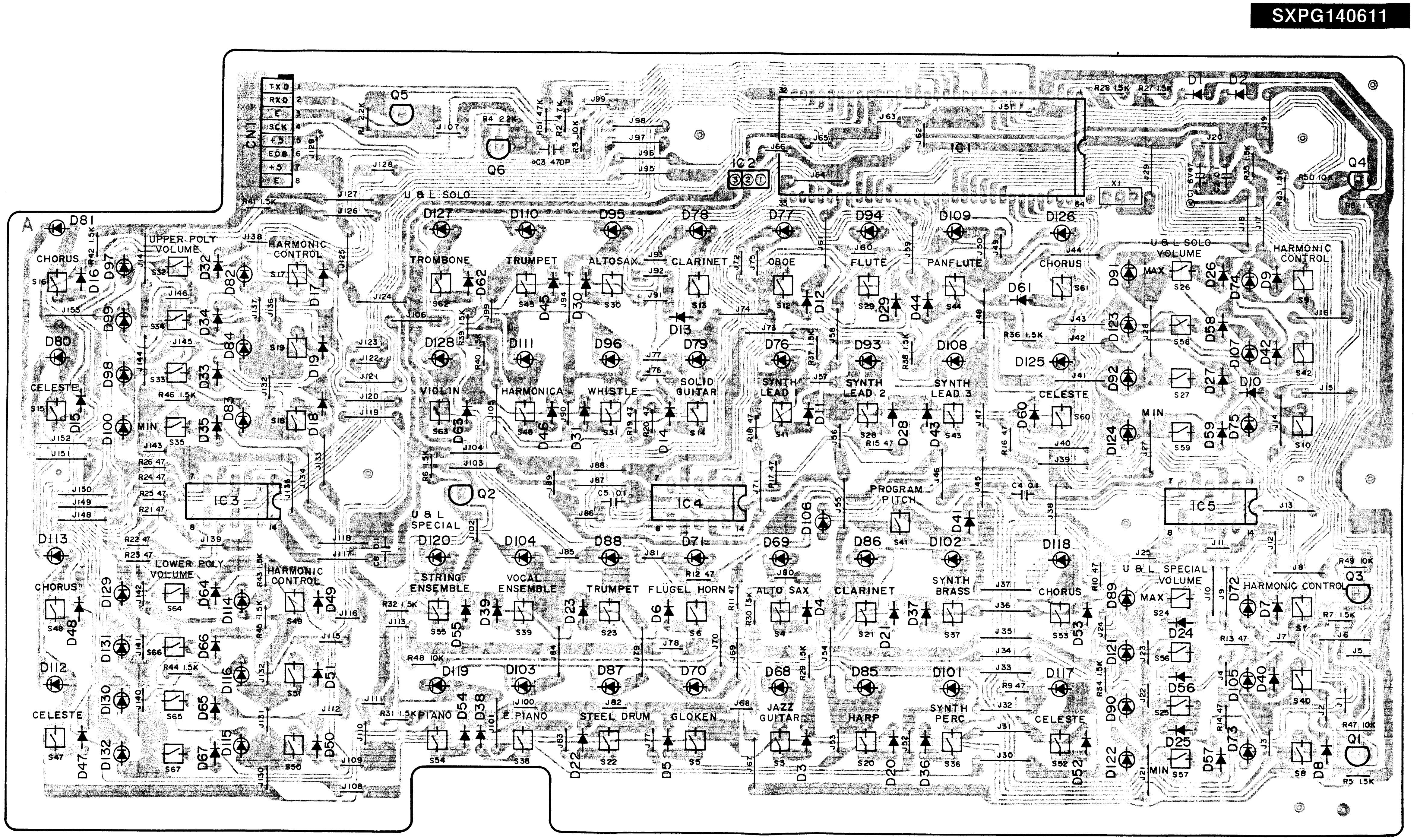
- DIODES

| | |
|---|---|
| D1~11, 13~71, 73~77, 151: | MA165TA5 |
| D78~88, 90~130, 134~144: | SVDGSEL4117R |
| D131~133, 145~148: | SVDGSEL4417G |
| D149, 150: | SVDGSEL4117R |

# CPC UPPER CONTROL PANEL CENTER CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
PS CN5
MAIN CN1
MAIN CN6
CN2
LPA
LPA
LPB
LPB
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
CN3
ADS
LCD1
E
LP1
LP2
LP3
LP4
P1
P2
P3
P4
IC2
Microcomputer
IC 1
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
X1
4MHz
LCD Driver
IC 10
R64 180K
LCD1
♩: 120
UPPER POLY
PIANO
BRASS
OCTAVE BRASS
LOWER ELECTRIC GRAND
POLY SYNTH PERC 2
CLAVI
OCTAVE BRASS
UPPER ELECTRIC GRAND
POLY SYNTH PERC 2
HAWAIIAN GUITAR
UPPER STRING ENSEMBLE
ORCHESTRAL
CONDUCTOR
ORGAN
TAB
UPPER STRING/ (step 4:MAX)
VOCAL ENS. (step 2)
VOLUME (step 3)
(step 1:MIN)
TREMOLO SLOW/FAST
TECHNI-CHORD
TRANSPOSE DOWN
UP
LOWER FRENCH HORN
POLY ELECTRIC PIANO
SYNTH PERC 1
JAZZ GUITAR
FRENCH HORN
UPPER ELECTRIC PIANO
POLY SYNTH PERC 1
JAZZ GUITAR
UPPER SPECIAL
ORCHESTRAL SOLO
CONDUCTOR POLY
VOCAL ENSEMBLE
LOWER STRING/ (step4:MAX)
VOCAL ENS. (step 2)
VOLUME (step 3)
(step 1:MIN)
KEYBOARD PERCUSSION
VSC SET
MIDI P. CHANGE
TENORSAX
LOWER HARPSI-CHORD
POLY SYNTH BRASS 2
GUITAR
TENORSAX
UPPER HARPSI CHORD
POLY SYNTH BRASS
GUITAR
LOWER STRING ENSEMBLE
ORCHESTRAL POLY
CONDUCTOR ORGAN
TAB
L.STRING/ VOCAL ENS 8'/4'
U.STRING/ VOCAL ENS. 16'/8'
VOICE 5
SETTING 4
COMPUTER 1
CANCEL
ACCOR-DION
LOWER VIBETONE
POLY SYNTH BRASS 1
BANJO
ACCORDION
UPPER VIBRA-PHONE
POLY BAGPIPE
BANJO
LOWER SPECIAL
ORCHESTRAL SOLO
CONDUCTOR
VOCAL ENSEMBLE
VOICE 7
SETTING 6
COMPUTER 3
2
IC5-1
IC4-1
IC5-2
IC4-2
IC3-2
IC6-1
IC3-3
IC6-2

# CPR UPPER CONTROL PANEL RIGHT CIRCUIT BOARD


SXPG140611
CN11
TXD
RXD
E
SCK
+5
EOB
+5
E
Q5
Q6
IC2
IC1
X1
Q4
Q2
Q3
Q1
IC3
IC4
IC5
U & L SOLO
UPPER POLY VOLUME
HARMONIC CONTROL
CHORUS
CELESTE
MIN
TROMBONE
TRUMPET
ALTOSAX
CLARINET
OBOE
FLUTE
PANFLUTE
CHORUS
U & L SOLO VOLUME
MAX
HARMONIC CONTROL
VIOLIN
HARMONICA
WHISTLE
SOLID GUITAR
SYNTH LEAD
SYNTH LEAD 2
SYNTH LEAD 3
CELESTE
MIN
PROGRAM PITCH
U & L SPECIAL
LOWER POLY VOLUME
HARMONIC CONTROL
CHORUS
CELESTE
STRING ENSEMBLE
VOCAL ENSEMBLE
TRUMPET
FLUGEL HORN
ALTO SAX
CLARINET
SYNTH BRASS
CHORUS
U & L SPECIAL VOLUME
MAX
HARMONIC CONTROL
PIANO
E.PIANO
STEEL DRUM
GLOKEN
JAZZ GUITAR
HARP
SYNTH PERC
CELESTE
MIN

NOTES:

- IC'S

| | |
|---|---|
| IC1: | MN15524PGY |
| IC2: | MN1280R |
| IC3~5: | SVIGM74LS07 |

- TRANSISTORS

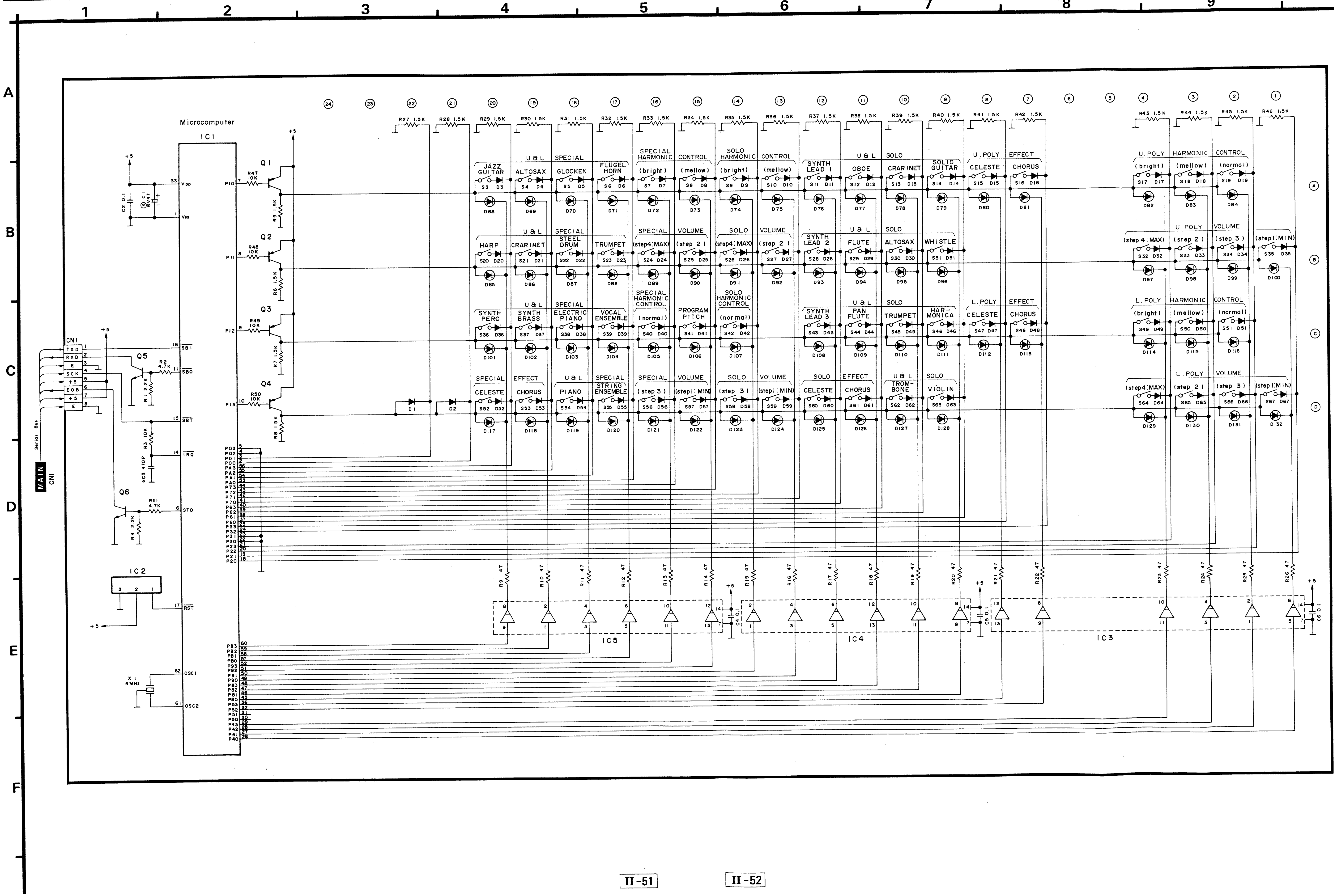
| | |
|---|---|
| Q1~4: | 2SA830SB |
| Q5: | 2SC1047C |
| Q6: | 2SC2320LFG |

- DIODES

| | |
|---|---|
| D1~67: | MA165TA5 |
| D68~105,<br>107~132: | SVDGSEL4117R |
| D106: | SVDGSEL4417G |

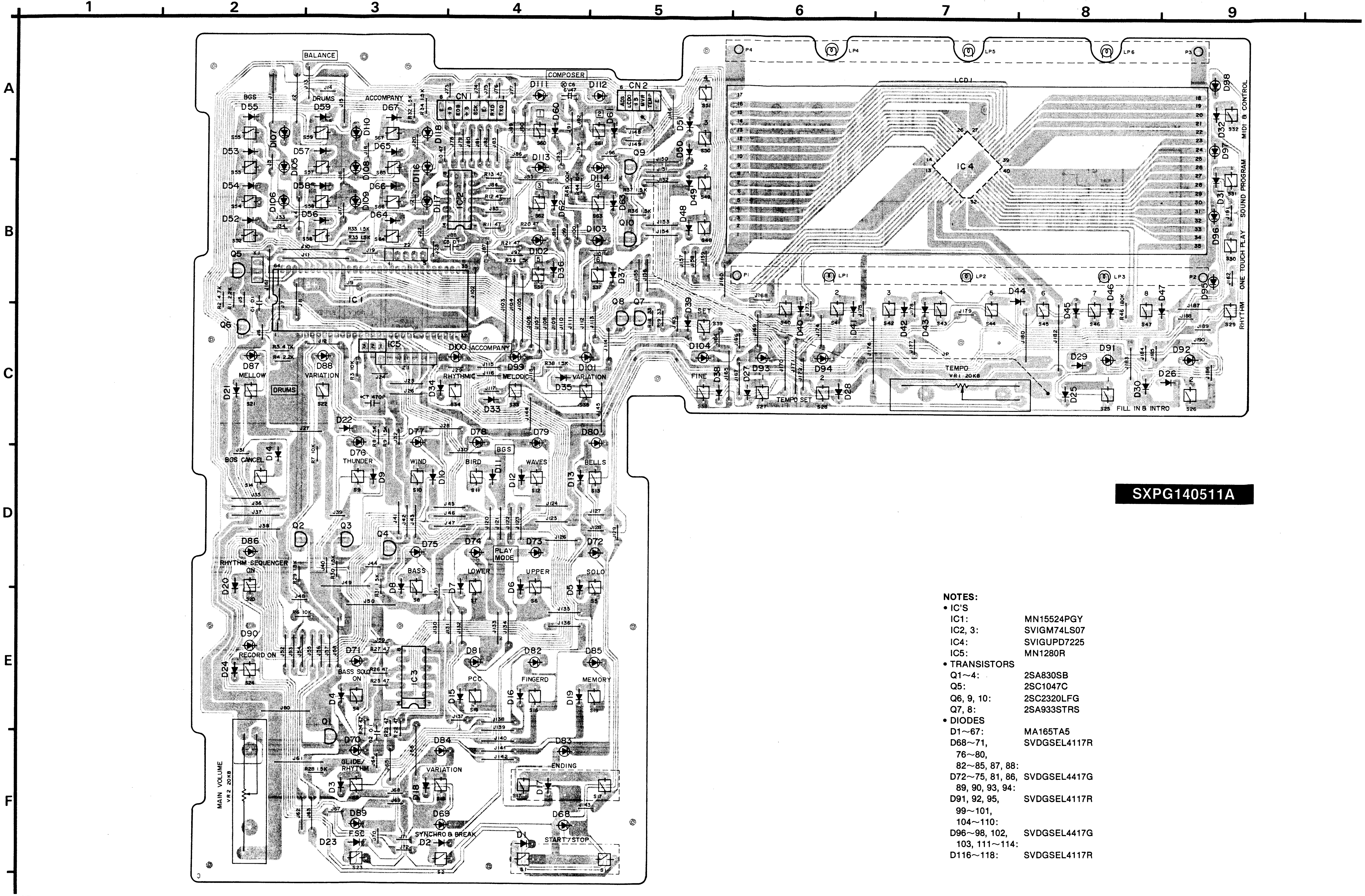
**CPR**

# UPPER CONTROL PANEL RIGHT CIRCUIT DIAGRAM



1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Microcomputer
IC1
IC2
IC3
IC4
IC5
Q1
Q2
Q3
Q4
Q5
Q6
CN1
TXD
RXD
SCK
EOB
+5
Serial Bus
MAIN CN1
VDD
VSS
SBI
SBO
SBT
IRQ
STO
RST
OSC1
OSC2
X1 4MHz
R47 10K
R48 10K
R49 10K
R50 10K
R5 1.5K
R6 1.5K
R7 1.5K
R8 1.5K
R1 2.2K
R2 4.7K
R3 10K
R4 2.2K
R51 4.7K
C2 0.1
C1
C3 470P
C4 0.1
C5 0.1
C6 0.1
D1
D2
P10
P11
P12
P13
JAZZ GUITAR
ALTOSAX
GLOCKEN
FLUGEL HORN
U & L
SPECIAL
SPECIAL HARMONIC
CONTROL
SOLO HARMONIC
(bright)
(mellow)
(normal)
SYNTH LEAD 1
OBOE
CRARINET
SOLID GUITAR
SOLO
U. POLY
EFFECT
CELESTE
CHORUS
HARMONIC
HARP
STEEL DRUM
TRUMPET
VOLUME
(step4: MAX)
(step 2)
(step 3)
(step1: MIN)
SYNTH LEAD 2
FLUTE
WHISTLE
SYNTH PERC
SYNTH BRASS
ELECTRIC PIANO
VOCAL ENSEMBLE
PROGRAM PITCH
SYNTH LEAD 3
PAN FLUTE
HAR-MONICA
L. POLY
PIANO
STRING ENSEMBLE
TROM-BONE
VIOLIN
R27 1.5K
R28 1.5K
R29 1.5K
R30 1.5K
R31 1.5K
R32 1.5K
R33 1.5K
R34 1.5K
R35 1.5K
R36 1.5K
R37 1.5K
R38 1.5K
R39 1.5K
R40 1.5K
R41 1.5K
R42 1.5K
R43 1.5K
R44 1.5K
R45 1.5K
R46 1.5K
R9 47
R10 47
R11 47
R12 47
R13 47
R14 47
R15 47
R16 47
R17 47
R18 47
R19 47
R20 47
R21 47
R22 47
R23 47
R24 47
R25 47
R26 47

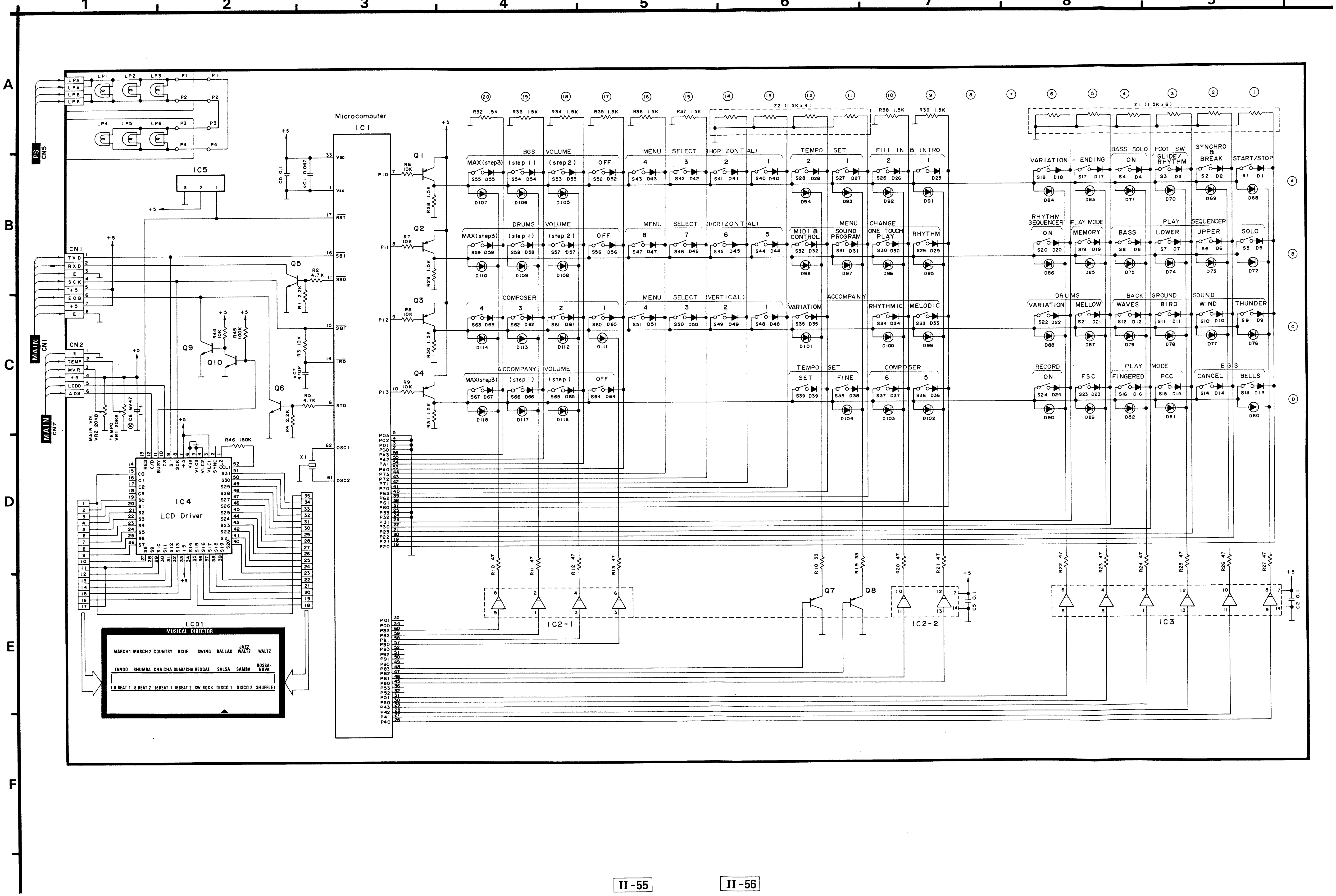
# CPSL LOWER CONTROL PANEL LEFT CIRCUIT BOARD


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
BALANCE
BGS
DRUMS
ACCOMPANY
COMPOSER
CN1
CN2
LCD1
IC1
IC2
IC3
IC4
IC5
LP1
LP2
LP3
LP4
LP5
LP6
MIDI & CONTROL
SOUND PROGRAM
ONE TOUCH PLAY
RHYTHM
SET
FINE
TEMPO SET
TEMPO
VR1 20KB
FILL IN & INTRO
MELLOW
VARIATION
RHYTHMIC
MELODIC
BGS CANCEL
THUNDER
WIND
BIRD
WAVES
BELLS
RHYTHM SEQUENCER ON
PLAY MODE
BASS
LOWER
UPPER
SOLO
RECORD ON
BASS SOLO ON
PCO
FINGERD
MEMORY
GLIDE/RHYTHM
ENDING
FSC
SYNCHRO & BREAK
START/STOP
MAIN VOLUME
VR2 20KB
SXPG140511A

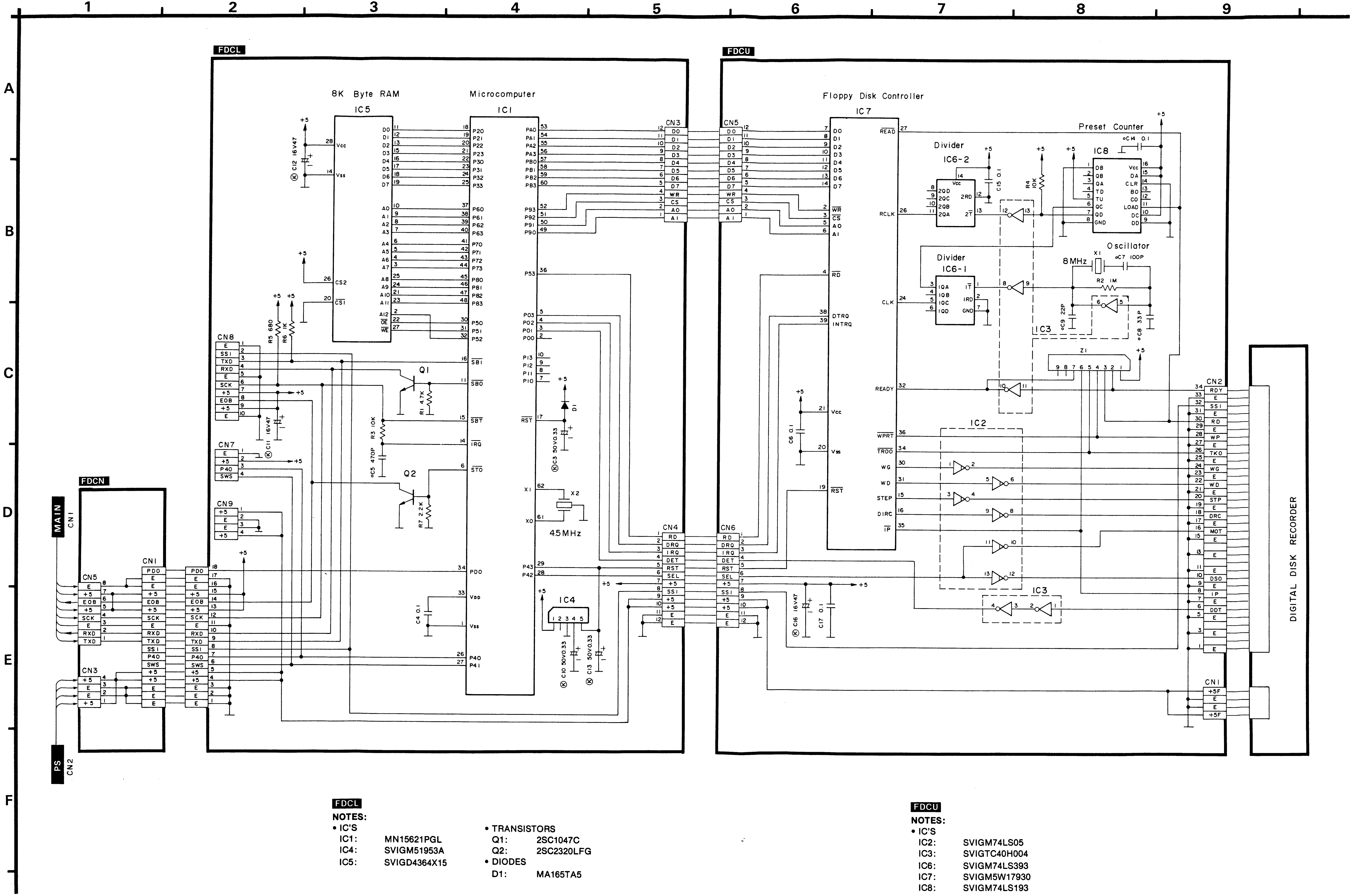
**NOTES:**

| | |
|---|---|
| • IC'S | |
| IC1: | MN15524PGY |
| IC2, 3: | SVIGM74LS07 |
| IC4: | SVIGUPD7225 |
| IC5: | MN1280R |
| • TRANSISTORS | |
| Q1～4: | 2SA830SB |
| Q5: | 2SC1047C |
| Q6, 9, 10: | 2SC2320LFG |
| Q7, 8: | 2SA933STRS |
| • DIODES | |
| D1～67: | MA165TA5 |
| D68～71,<br>76～80,<br>82～85, 87, 88: | SVDGSEL4117R |
| D72～75, 81, 86,<br>89, 90, 93, 94: | SVDGSEL4417G |
| D91, 92, 95,<br>99～101,<br>104～110: | SVDGSEL4117R |
| D96～98, 102,<br>103, 111～114: | SVDGSEL4417G |
| D116～118: | SVDGSEL4117R |

# CPSL LOWER CONTROL PANEL LEFT CIRCUIT DIAGRAM


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
PS CN5
LPA
LPB
LP1
LP2
LP3
LP4
LP5
LP6
P1
P2
P3
P4
IC5
CN1
TXD
RXD
E
SCK
+5
EOB
MAIN CN1
CN2
TEMP
MVR
LCDO
ADS
MAIN CN7
MAIN VOL. VR2 20KB
TEMPO VR1 20KB
Q5
Q6
Q9
Q10
R44 10K
R45 100K
R46 180K
Microcomputer
IC1
VDD
VSS
RST
SBI
SBO
SBT
IRQ
STO
OSC1
OSC2
X1
IC4
LCD Driver
LCD1
MUSICAL DIRECTOR
MARCH1
MARCH 2
COUNTRY
DIXIE
SWING
BALLAD
JAZZ WALTZ
WALTZ
TANGO
RHUMBA
CHA CHA
GUARACHA
REGGAE
SALSA
SAMBA
BOSSA-NOVA
8 BEAT 1
8 BEAT 2
16BEAT 1
16BEAT 2
SW ROCK
DISCO 1
DISCO 2
SHUFFLE
Q1
Q2
Q3
Q4
Z2 (1.5K x 4)
Z1 (1.5K x 6)
BGS
VOLUME
MAX (step3)
(step 1)
(step2)
OFF
MENU
SELECT
(HORIZONTAL)
(VERTICAL)
TEMPO
SET
FILL IN & INTRO
VARIATION - ENDING
BASS SOLO
ON
FOOT SW GLIDE/RHYTHM
SYNCHRO & BREAK
START/STOP
DRUMS
MIDI & CONTROL
MENU SOUND PROGRAM
CHANGE ONE TOUCH PLAY
RHYTHM
RHYTHM SEQUENCER ON
PLAY MODE MEMORY
BASS
PLAY LOWER
SEQUENCER UPPER
SOLO
COMPOSER
ACCOMPANY
VARIATION
RHYTHMIC
MELODIC
DRUMS VARIATION
MELLOW
BACK GROUND WAVES
BIRD
SOUND WIND
THUNDER
TEMPO SET
FINE
COMPOSER
RECORD ON
FSC
PLAY MODE FINGERED
PCC
BGS CANCEL
BELLS
Q7
Q8
IC2-1
IC2-2
IC3

# FDCU FDCL FDCN FD CONTROL UPPER, FD CONTROL LOWER, FD CONNECTOR CIRCUIT DIAGRAM


1 2 3 4 5 6 7 8 9
A B C D E F
FDCL
FDCU
FDCN
8K Byte RAM
IC5
Microcomputer
IC1
Floppy Disk Controller
IC7
Divider
IC6-2
IC6-1
Preset Counter
IC8
Oscillator
8MHz
X1
IC3
Z1
IC2
IC4
Q1
Q2
D1
X2
4.5MHz
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
MAIN CN1
PS CN2
DIGITAL DISK RECORDER
READ
RCLK
CLK
READY
WPRT
TR00
WG
WD
STEP
DIRC
IP
RST
DTRQ
INTRQ
RD
WR
CS
A0
A1
Vcc
Vss
PD0
P40
P41
SB1
SB0
SBT
IRQ
ST0
SWS
EOB
SCK
RXD
TXD
SSI
DRQ
DET
SEL
RDY
TK0
STP
DRC
MOT
DSO
DDT
+5F

**FDCL**

**NOTES:**

- IC'S
  - IC1: MN15621PGL
  - IC4: SVIGM51953A
  - IC5: SVIGD4364X15
- TRANSISTORS
  - Q1: 2SC1047C
  - Q2: 2SC2320LFG
- DIODES
  - D1: MA165TA5

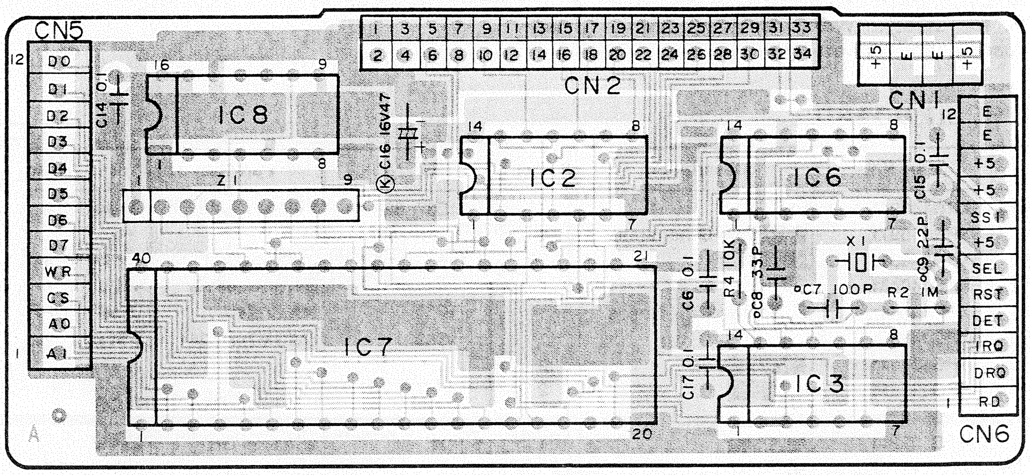
**FDCU**

**NOTES:**

- IC'S
  - IC2: SVIGM74LS05
  - IC3: SVIGTC40H004
  - IC6: SVIGM74LS393
  - IC7: SVIGM5W17930
  - IC8: SVIGM74LS193

## FDCU FD CONTROL UPPER P.C.B.

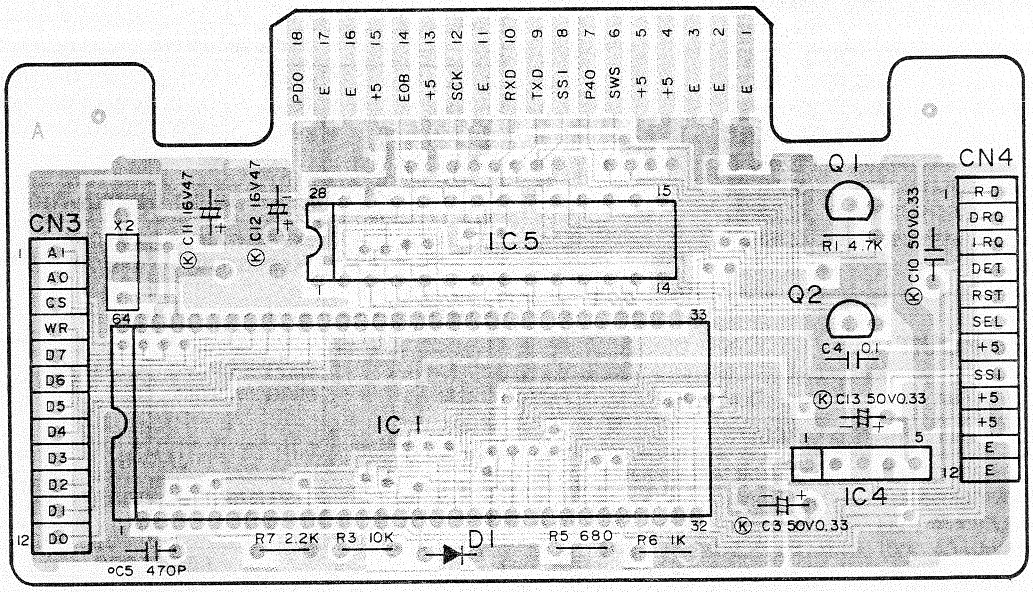
**SXPG141211B**


CN5
12
D0
D1
D2
D3
D4
D5
D6
D7
WR
CS
A0
A1
1
C14 0.1
16
9
IC8
1
8
Z1
1
9
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34
CN2
Ⓚ C16 16V47
14
8
IC2
1
7
14
8
IC6
1
7
C15 0.1
40
21
IC7
1
20
C6 0.1
R4 10K
C8 33P
X1
C7 100P
R2 1M
C9 22P
C17 0.1
14
8
IC3
1
7
+5
E
E
+5
CN1
12
E
E
+5
+5
SSI
+5
SEL
RST
DET
IRQ
DRQ
RD
1
CN6
A

Circuit view on top of P.C.B.

## FDCL FD CONTROL LOWER P.C.B.

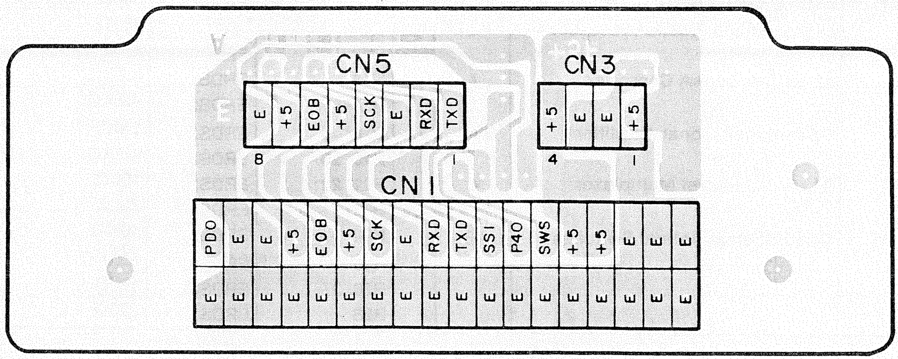
**SXPG141211A**


18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
PDO
E
E
+5
EOB
+5
SCK
E
RXD
TXD
SSI
P40
SWS
+5
+5
E
E
E
A
CN3
1
A1
A0
CS
WR
D7
D6
D5
D4
D3
D2
D1
D0
12
X2
Ⓚ C11 16V47
Ⓚ C12 16V47
28
15
IC5
1
14
64
33
IC1
1
32
Q1
R1 4.7K
Q2
C4 0.1
Ⓚ C10 50V0.33
Ⓚ C13 50V0.33
1
5
IC4
Ⓚ C3 50V0.33
C5 470P
R7 2.2K
R3 10K
D1
R5 680
R6 1K
CN4
1
RD
DRQ
IRQ
DET
RST
SEL
+5
SSI
+5
+5
E
E
12

Circuit view on top of P.C.B.

## FDCN FD CONNECTOR P.C.B.

**SXPG141911**


A
CN5
E
+5
EOB
+5
SCK
E
RXD
TXD
8
1
CN3
+5
E
E
+5
4
1
CN1
PDO
E
E
+5
EOB
+5
SCK
E
RXD
TXD
SSI
P40
SWS
+5
+5
E
E
E
E E E E E E E E E E E E E E E E E E

# REPLACEMENT PARTS LIST......P.C.B. and Wiring Parts

**Notes:**

1. Printed circuit board assembly with mark (NLA) is no longer available after production discontinuation of the complete set.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

## ■ PRINTED CIRCUIT BOARD

| | NLA | Area | Part No. | Description | Per/Set |
|---|---|---|---|---|---|
| ○ | NLA | M MC EZ | SXPG140241 | MAIN | 1 |
| ○ | NLA | | SXPG140211 | MAIN Other areas | 1 |
| ○ | NLA | | SXPG140311 | SG | 1 |
| ○ | NLA | M MC EZ | SXPG140431 | EJ | 1 |
| ○ | NLA | | SXPG140411 | EJ Other areas | 1 |
| ○ | NLA | | SXPG141811 | DRV | 1 |
| ○ | NLA | | SXPG137611 | MKB1 | 2 |
| ○ | NLA | | SXPG137811 | MKB3 | 2 |
| ○ | NLA | | SXPG142811 | PKB | 1 |
| | NLA | | SXPG103211 | EXP | 1 |
| ○ | NLA | M MC | S0PG140921 | ACP | 1 |
| ○ | NLA | EK XS XL<br>XR X | S0PG140931 | ACP | 1 |
| ○ | NLA | | S0PG140911 | ACP Other areas | 1 |
| ○ | NLA | M MC | SXPG139351 | PS | 1 |
| ○ | NLA | | SXPG139341 | PS Other areas | 1 |
| ○ | NLA | | SXPG139231 | PA | 1 |
| ○ | NLA | | SXPG140511E | NW | 1 |
| ○ | NLA | | SXPG140811 | CPL | 1 |
| ○ | NLA | | SXPG140511B | JACK | 1 |
| ○ | NLA | | SXPG140711 | CPC | 1 |
| ○ | NLA | | SXPG140611 | CPR | 1 |
| ○ | NLA | | SXPG140511A | CPSL | 1 |
| ○ | NLA | | SXPG141211B | FDCU | 1 |
| ○ | NLA | | SXPG141211A | FDCL | 1 |
| ○ | NLA | | SXPG141911 | FDCN | 1 |

## MAIN MAIN CIRCUIT

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **INTEGRATED CIRCUITS** | | | |
| ○ | IC1, 3 | SVIG7810HCW | 1 chip 8 bit Microcomputer | 2 |
| | IC2 | SVIGM6050211 | Gate Array | 1 |
| | IC4 | SVIGM603A114 | Gate Array | 1 |
| ○ | IC5 | SVIGAGX7AX2 | 1M bit EP ROM | 1 |
| | IC6, 7 | SVIGD446415L | 16K bit SRAM | 2 |
| ○ | IC8 | SVIG2GX7BX2 | 256K bit EP ROM | 1 |
| | IC9 | SVIGD446C25 | 16K bit SRAM | 1 |
| | IC10 | SVIGPC900 | Photo Coupler | 1 |
| | IC11 | SVIGM74LS07 | Hex Buffers (O.C.) | 1 |
| | IC12 | SVIGM74LS05 | Hex Inverters (O.C.) | 1 |
| ○ | IC13 | SVIGU3C04158 | 4M bit Mask ROM | 1 |
| | IC14, 26, 39, 51 | MN6635 | Digital Sound Processor | 4 |
| | IC15, 27, 40, 52 | SVIGBA9221 | 12 bit D-A Converter | 4 |
| | IC16, 28, 41, 53 | SVIGM5238L | Operational Amplifier | 4 |
| | IC17, 29, 42, 54 | SVIGT74H4051 | 8-channel Multiplexer | 4 |
| | IC18~21, 30~33, 43~46, 55~58 | SVIGM74H4066 | Quad Bilateral Switches | 16 |
| | IC37, 62~64, 66~68 | SVIGM5218L | Operational Amplifier | 7 |
| ○ | IC38 ┌IC1 | SVIGU3C04161 | 4M bit Mask ROM | 1 |
| | └IC2 | SVIGU3C04162 | 4M bit Mask ROM | 1 |
| | IC65 | MN40174B | D-type Flip-Flop (Latch) | 1 |
| | IC69 | SVIGM74HC244 | 3-State Buffer | 1 |
| | **TRANSISTORS** | | | |
| S | Q1 | 2SA1015-GR | 2SA933STRS | 1 |
| S | Q2, 3 | 2SC2320LFG | 2SC1310FG | 2 |
| | Q4~13 | 2SJ105GR | FET | 10 |
| | **DIODES** | | | |
| | D9~26, 100 | MA165TA5 | | 19 |
| | **OSCILLATORS** | | | |
| | X1, 2 | SVQG49S1500T | 15MHz, Quartz Oscillator | 2 |
| | X3 | EF0FC4004A3 | 4MHz, Ceramic Oscillator | 1 |
| | X4, 5 | SVQG49S1600T | 16MHz, Quartz Oscillator | 2 |
| | **COMPONENT COMBINATIONS** | | | |
| | Z1~4, 9 | EXBP88472JM | 4.7KΩ × 8 | 5 |
| | Z5~8 | EXKS14Z2073 | 1KΩ/2KΩ, Ladder Network | 4 |
| | **COILS** | | | |
| | L2~4, 6 | SLQG15W34DPQ | Coil } M MC EZ | 4 |
| | L5 | SLQG10W10DIP | Coil | 1 |
| | **JACKS** | | | |
| | JK1~3 | SJSG1370A | MIDI (IN, OUT, THRU) | 3 |
| | **RESISTORS** | | | |
| | R2 | ERDS2TJ102 | 1KΩ | 1 |
| | R4 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R7 | ERDS2TJ333 | 33KΩ | 1 |
| | R8 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R9 | ERDS2TJ330 | 33Ω | 1 |
| | R10 | ERDS2TJ331 | 330Ω | 1 |
| | R11 | ERDS2TJ681 | 680Ω | 1 |
| | R12 | ERDS2TJ102 | 1KΩ | 1 |
| | R13 | ERDS2TJ332 | 3.3KΩ | 1 |
| | R14~17 | ERDS2TJ472 | 4.7KΩ | 4 |
| | R18 | ERDS2TJ105 | 1MΩ | 1 |
| | R19, 20 | ERDS2TJ472 | 4.7KΩ | 2 |
| | R21, 22 | ERDS2TJ101 | 100Ω | 2 |
| | R23 | ERDS2TJ221 | 220Ω | 1 |
| | R24 | ERDS2TJ103 | 10KΩ | 1 |
| | R25 | ERDS2TJ334 | 330KΩ | 1 |
| | R26, 27 | ERDS2TJ101 | 100Ω | 2 |
| | R28 | ERDS2TJ221 | 220Ω | 1 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| R29 | ERDS2TJ103 | 10KΩ | 1 |
| R30 | ERDS2TJ334 | 330KΩ | 1 |
| R31 | ERDS2TJ221 | 220Ω | 1 |
| R32 | ERDS2TJ331 | 330Ω | 1 |
| R33 | ERDS2TJ330 | 33Ω | 1 |
| R37 | ERDS2TJ184 | 180KΩ | 1 |
| R40 | ERDS2TJ473 | 47KΩ | 1 |
| R41 | ERDS2TJ222 | 2.2KΩ | 1 |
| R42 | ERDS2TJ103 | 10KΩ | 1 |
| R43 | ERDS2TJ222 | 2.2KΩ | 1 |
| R44~46 | ERDS2TJ471 | 470Ω | 3 |
| R47 | ERDS2TJ333 | 33KΩ | 1 |
| R48 | ERDS2TJ183 | 18KΩ | 1 |
| R49, 50 | ER0S2CKF4700 | 470Ω, ±1% | 2 |
| R51 | ERDS2TJ151 | 150Ω | 1 |
| R52, 53 | ERDS2TJ331 | 330Ω | 2 |
| R54 | ERDS2TJ473 | 47KΩ | 1 |
| R55 | ERDS2TJ151 | 150Ω | 1 |
| R56, 57 | ERDS2TJ331 | 330Ω | 2 |
| R58 | ERDS2TJ473 | 47KΩ | 1 |
| R59 | ERDS2TJ151 | 150Ω | 1 |
| R60, 61 | ERDS2TJ331 | 330Ω | 2 |
| R62 | ERDS2TJ473 | 47KΩ | 1 |
| R63 | ERDS2TJ151 | 150Ω | 1 |
| R64, 65 | ERDS2TJ331 | 330Ω | 2 |
| R66 | ERDS2TJ473 | 47KΩ | 1 |
| R67 | ERDS2TJ151 | 150Ω | 1 |
| R68, 69 | ERDS2TJ331 | 330Ω | 2 |
| R70 | ERDS2TJ473 | 47KΩ | 1 |
| R71 | ERDS2TJ151 | 150Ω | 1 |
| R72, 73 | ERDS2TJ331 | 330Ω | 2 |
| R74 | ERDS2TJ473 | 47KΩ | 1 |
| R75 | ERDS2TJ151 | 150Ω | 1 |
| R76, 77 | ERDS2TJ331 | 330Ω | 2 |
| R78 | ERDS2TJ473 | 47KΩ | 1 |
| R79 | ERDS2TJ151 | 150Ω | 1 |
| R80, 81 | ERDS2TJ331 | 330Ω | 2 |
| R82 | ERDS2TJ473 | 47KΩ | 1 |
| R83, 84 | ERDS2TJ471 | 470Ω | 2 |
| R85 | ERDS2TJ123 | 12KΩ | 1 |
| R86, 87 | ER0S2CKF4700 | 470Ω, ±1% | 2 |
| R88 | ERDS2TJ151 | 150Ω | 1 |
| R89, 90 | ERDS2TJ331 | 330Ω | 2 |
| R91 | ERDS2TJ473 | 47KΩ | 1 |
| R92 | ERDS2TJ151 | 150Ω | 1 |
| R93, 94 | ERDS2TJ331 | 330Ω | 2 |
| R95 | ERDS2TJ473 | 47KΩ | 1 |
| R96 | ERDS2TJ151 | 150Ω | 1 |
| R97, 98 | ERDS2TJ331 | 330Ω | 2 |
| R99 | ERDS2TJ473 | 47KΩ | 1 |
| R100 | ERDS2TJ151 | 150Ω | 1 |
| R101, 102 | ERDS2TJ331 | 330Ω | 2 |
| R103 | ERDS2TJ473 | 47KΩ | 1 |
| R104 | ERDS2TJ151 | 150Ω | 1 |
| R105, 106 | ERDS2TJ331 | 330Ω | 2 |
| R107 | ERDS2TJ473 | 47KΩ | 1 |
| R108 | ERDS2TJ151 | 150Ω | 1 |
| R109, 110 | ERDS2TJ331 | 330Ω | 2 |
| R111 | ERDS2TJ473 | 47KΩ | 1 |
| R112 | ERDS2TJ151 | 150Ω | 1 |
| R113, 114 | ERDS2TJ331 | 330Ω | 2 |
| R115 | ERDS2TJ473 | 47KΩ | 1 |
| R116 | ERDS2TJ151 | 150Ω | 1 |
| R117, 118 | ERDS2TJ331 | 330Ω | 2 |
| R119~121 | ERDS2TJ473 | 47KΩ | 3 |
| R122 | ERDS2TJ103 | 10KΩ | 1 |
| R123, 124 | ERDS2TJ472 | 4.7KΩ | 2 |
| R125 | ERDS2TJ104 | 100KΩ | 1 |
| R126 | ERDS2TJ225 | 2.2MΩ | 1 |
| R127~136 | ERDS2TJ105 | 1MΩ | 10 |
| R137, 138 ⚠ | ERD2FCJ4R7 | 4.7Ω, 1/4W, Fuse Type | 2 |
| R140 ⚠ | ERQ14AJ2R0 | 2Ω, 1/4W, Fuse Type | 1 |
| R141, 142 | ERDS2TJ471 | 470Ω | 2 |
| R143 | ERDS2TJ123 | 12KΩ | 1 |
| R144, 145 | ER0S2CKF4700 | 470Ω, ±1% | 2 |
| R146 | ERDS2TJ151 | 150Ω | 1 |
| R147, 148 | ERDS2TJ331 | 330Ω | 2 |
| R149 | ERDS2TJ473 | 47KΩ | 1 |
| R150 | ERDS2TJ151 | 150Ω | 1 |
| R151, 152 | ERDS2TJ331 | 330Ω | 2 |
| R153 | ERDS2TJ473 | 47KΩ | 1 |
| R154 | ERDS2TJ151 | 150Ω | 1 |
| R155, 156 | ERDS2TJ331 | 330Ω | 2 |
| R157 | ERDS2TJ473 | 47KΩ | 1 |
| R158 | ERDS2TJ151 | 150Ω | 1 |
| R159, 160 | ERDS2TJ331 | 330Ω | 2 |
| R161 | ERDS2TJ473 | 47KΩ | 1 |
| R162 | ERDS2TJ151 | 150Ω | 1 |
| R163, 164 | ERDS2TJ331 | 330Ω | 2 |
| R165 | ERDS2TJ473 | 47KΩ | 1 |
| R166 | ERDS2TJ151 | 150Ω | 1 |
| R167, 168 | ERDS2TJ331 | 330Ω | 2 |
| R169 | ERDS2TJ473 | 47KΩ | 1 |
| R170 | ERDS2TJ151 | 150Ω | 1 |
| R171, 172 | ERDS2TJ331 | 330Ω | 2 |
| R173 | ERDS2TJ473 | 47KΩ | 1 |
| R174 | ERDS2TJ151 | 150Ω | 1 |
| R175, 176 | ERDS2TJ331 | 330Ω | 2 |
| R177~179 | ERDS2TJ473 | 47KΩ | 3 |
| R180, 181 | ERDS2TJ471 | 470Ω | 2 |
| R182 | ERDS2TJ123 | 12KΩ | 1 |
| R183, 184 | ER0S2CKF4700 | 470Ω, ±1% | 2 |
| R185 | ERDS2TJ151 | 150Ω | 1 |
| R186, 187 | ERDS2TJ331 | 330Ω | 2 |
| R188 | ERDS2TJ473 | 47KΩ | 1 |
| R189 | ERDS2TJ151 | 150Ω | 1 |
| R190, 191 | ERDS2TJ331 | 330Ω | 2 |
| R192 | ERDS2TJ473 | 47KΩ | 1 |
| R193 | ERDS2TJ151 | 150Ω | 1 |
| R194, 195 | ERDS2TJ331 | 330Ω | 2 |
| R196 | ERDS2TJ473 | 47KΩ | 1 |
| R197 | ERDS2TJ151 | 150Ω | 1 |
| R198, 199 | ERDS2TJ331 | 330Ω | 2 |
| R200 | ERDS2TJ473 | 47KΩ | 1 |
| R201 | ERDS2TJ151 | 150Ω | 1 |
| R202, 203 | ERDS2TJ331 | 330Ω | 2 |
| R204 | ERDS2TJ473 | 47KΩ | 1 |
| R205 | ERDS2TJ151 | 150Ω | 1 |
| R206, 207 | ERDS2TJ331 | 330Ω | 2 |
| R208 | ERDS2TJ473 | 47KΩ | 1 |
| R209 | ERDS2TJ151 | 150Ω | 1 |
| R210, 211 | ERDS2TJ331 | 330Ω | 2 |
| R212 | ERDS2TJ473 | 47KΩ | 1 |
| R213 | ERDS2TJ151 | 150Ω | 1 |
| R214, 215 | ERDS2TJ331 | 330Ω | 2 |
| R216, 217 | ERDS2TJ473 | 47KΩ | 2 |
| R218 | ERDS2TJ104 | 100KΩ | 1 |
| R219, 220 | ERDS2TJ473 | 47KΩ | 2 |
| R221~223 | ERDS2TJ104 | 100KΩ | 3 |
| R224 | ERDS2TJ333 | 33KΩ | 1 |
| R225 | ERDS2TJ473 | 47KΩ | 1 |
| R226 | ERDS2TJ153 | 15KΩ | 1 |
| R227~229 | ERDS2TJ104 | 100KΩ | 3 |
| R230 | ERDS2TJ333 | 33KΩ | 1 |
| R231 | ERDS2TJ473 | 47KΩ | 1 |
| R232 | ERDS2TJ153 | 15KΩ | 1 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| R233~235 | ERDS2TJ104 | 100KΩ | 3 |
| R236 | ERDS2TJ333 | 33KΩ | 1 |
| R237 | ERDS2TJ473 | 47KΩ | 1 |
| R238 | ERDS2TJ153 | 15KΩ | 1 |
| R239~241 | ERDS2TJ104 | 100KΩ | 3 |
| R242 | ERDS2TJ333 | 33KΩ | 1 |
| R243 | ERDS2TJ473 | 47KΩ | 1 |
| R244 | ERDS2TJ153 | 15KΩ | 1 |
| R245~247 | ERDS2TJ104 | 100KΩ | 3 |
| R248 | ERDS2TJ333 | 33KΩ | 1 |
| R249 | ERDS2TJ473 | 47KΩ | 1 |
| R250 | ERDS2TJ153 | 15KΩ | 1 |
| R251, 252 | ERDS2TJ473 | 47KΩ | 2 |
| R254 | ERDS2TJ471 | 470Ω | 1 |
| R255 | ERDS2TJ333 | 33KΩ | 1 |
| R256, 257 | ERDS2TJ472 | 4.7KΩ | 2 |

## CAPACITORS

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| C1 | ECQG1H102KZ | 0.001μF | 1 |
| C2 | ECCR1H221J | 220pF | 1 |
| C3~5 | ECKR1E473ZV | 0.047μF | 3 |
| C6 | ECEA0JU331 | 330μF, 6.3V | 1 |
| C7 | ECKR1E473ZV | 0.047μF | 1 |
| C8 | ECEA0JU331 | 330μF, 6.3V | 1 |
| C10 | ECKR1E473ZV | 0.047μF | 1 |
| C11~14 | ECCR1H220J | 22pF | 4 |
| C15 | ECEA1HU010 | 1μF, 50V | 1 |
| C16, 17 | ECKR1E473ZV | 0.047μF | 2 |
| C18 | ECQV1H104JZ | 0.1μF | 1 |
| ○ C20 | AC2061G473Z5 | 0.047F, 5.5V,<br>Memory Back-up | 1 |
| C22~24 | ECKR1E473ZV | 0.047μF | 3 |
| C25, 26 | ECCR1H220J | 22pF | 2 |
| C27 | ECEA0JU101 | 100μF, 6.3V | 1 |
| C28 | ECEA0JU470 | 47μF, 6.3V | 1 |
| C29 | ECCR1H221J | 220pF | 1 |
| C30 | ECKR1E473ZV | 0.047μF | 1 |
| C31 | ECQG1H472KZ | 0.0047μF | 1 |
| C32 | ECQG1H102KZ | 0.001μF | 1 |
| C33 | ECQG1H472KZ | 0.0047μF | 1 |
| C34 | ECQG1H102KZ | 0.001μF | 1 |
| C35 | ECQG1H472KZ | 0.0047μF | 1 |
| C36 | ECQG1H102KZ | 0.001μF | 1 |
| C37 | ECQG1H472KZ | 0.0047μF | 1 |
| C38 | ECQG1H102KZ | 0.001μF | 1 |
| C39 | ECQG1H472KZ | 0.0047μF | 1 |
| C40 | ECQG1H102KZ | 0.001μF | 1 |
| C41 | ECQG1H472KZ | 0.0047μF | 1 |
| C42 | ECQG1H102KZ | 0.001μF | 1 |
| C43 | ECQG1H472KZ | 0.0047μF | 1 |
| C44 | ECQG1H102KZ | 0.001μF | 1 |
| C45 | ECQG1H472KZ | 0.0047μF | 1 |
| C46 | ECQG1H102KZ | 0.001μF | 1 |
| C48 | ECCR1H471J | 470pF | 1 |
| C49 | ECQV1H104JZ | 0.1μF | 1 |
| C50, 51 | ECKR1E473ZV | 0.047μF | 2 |
| C52 | ECCR1H221J | 220pF | 1 |
| C53 | ECKR1E473ZV | 0.047μF | 1 |
| C54 | ECEA0JU101 | 100μF, 6.3V | 1 |
| C55 | ECEA0JU470 | 47μF, 6.3V | 1 |
| C56, 57 | ECKR1E473ZV | 0.047μF | 2 |
| C58 | ECQG1H472KZ | 0.0047μF | 1 |
| C59 | ECQG1H102KZ | 0.001μF | 1 |
| C60 | ECQG1H472KZ | 0.0047μF | 1 |
| C61 | ECQG1H102KZ | 0.001μF | 1 |
| C62 | ECQG1H472KZ | 0.0047μF | 1 |
| C63 | ECQG1H102KZ | 0.001μF | 1 |
| C64 | ECQG1H472KZ | 0.0047μF | 1 |
| C65 | ECQG1H102KZ | 0.001μF | 1 |
| C66 | ECQG1H472KZ | 0.0047μF | 1 |
| C67 | ECQG1H102KZ | 0.001μF | 1 |
| C68 | ECQG1H472KZ | 0.0047μF | 1 |
| C69 | ECQG1H102KZ | 0.001μF | 1 |
| C70 | ECQG1H472KZ | 0.0047μF | 1 |
| C71 | ECQG1H102KZ | 0.001μF | 1 |
| C72 | ECQG1H472KZ | 0.0047μF | 1 |
| C73 | ECQG1H102KZ | 0.001μF | 1 |
| C74 | ECCR1H471J | 470pF | 1 |
| C76 | ECQV1H104JZ | 0.1μF | 1 |
| C77 | ECQG1H472KZ | 0.0047μF | 1 |
| C78 | ECQG1H222KZ | 0.0022μF | 1 |
| C79 | ECEA0JU101 | 100μF, 6.3V | 1 |
| C80 | ECQV1H104JZ | 0.1μF | 1 |
| C81, 82 | ECEA1CU101 | 100μF, 16V | 2 |
| C83 | ECEA0JU331 | 330μF, 6.3V | 1 |
| ○ C85 | ECRR1H104ZF | 0.1μF | 1 |
| C86, 87 | ECKR1E473ZV | 0.047μF | 2 |
| C88, 89 | ECCR1H220J | 22pF | 2 |
| C90 | ECCR1H221J | 220pF | 1 |
| C91 | ECEA0JU101 | 100μF, 6.3V | 1 |
| C92, 93 | ECKR1E473ZV | 0.047μF | 2 |
| C94 | ECQG1H472KZ | 0.0047μF | 1 |
| C95 | ECQG1H102KZ | 0.001μF | 1 |
| C96 | ECQG1H472KZ | 0.0047μF | 1 |
| C97 | ECQG1H102KZ | 0.001μF | 1 |
| C98 | ECQG1H472KZ | 0.0047μF | 1 |
| C99 | ECQG1H102KZ | 0.001μF | 1 |
| C100 | ECQG1H472KZ | 0.0047μF | 1 |
| C101 | ECQG1H102KZ | 0.001μF | 1 |
| C102 | ECQG1H472KZ | 0.0047μF | 1 |
| C103 | ECQG1H102KZ | 0.001μF | 1 |
| C104 | ECQG1H472KZ | 0.0047μF | 1 |
| C105 | ECQG1H102KZ | 0.001μF | 1 |
| C106 | ECQG1H472KZ | 0.0047μF | 1 |
| C107 | ECQG1H102KZ | 0.001μF | 1 |
| C108 | ECQG1H472KZ | 0.0047μF | 1 |
| C109 | ECQG1H102KZ | 0.001μF | 1 |
| C110 | ECCR1H471J | 470pF | 1 |
| C112 | ECQV1H104JZ | 0.1μF | 1 |
| ○ C113 | ECRR1H104ZF | 0.1μF | 1 |
| C114 | ECKR1E473ZV | 0.047μF | 1 |
| C115 | ECCR1H221J | 220pF | 1 |
| C116 | ECEA0JU101 | 100μF, 6.3V | 1 |
| C117, 118 | ECKR1E473ZV | 0.047μF | 2 |
| C119 | ECQG1H472KZ | 0.0047μF | 1 |
| C120 | ECQG1H102KZ | 0.001μF | 1 |
| C121 | ECQG1H472KZ | 0.0047μF | 1 |
| C122 | ECQG1H102KZ | 0.001μF | 1 |
| C123 | ECQG1H472KZ | 0.0047μF | 1 |
| C124 | ECQG1H102KZ | 0.001μF | 1 |
| C125 | ECQG1H472KZ | 0.0047μF | 1 |
| C126 | ECQG1H102KZ | 0.001μF | 1 |
| C127 | ECQG1H472KZ | 0.0047μF | 1 |
| C128 | ECQG1H102KZ | 0.001μF | 1 |
| C129 | ECQG1H472KZ | 0.0047μF | 1 |
| C130 | ECQG1H102KZ | 0.001μF | 1 |
| C131 | ECQG1H472KZ | 0.0047μF | 1 |
| C132 | ECQG1H102KZ | 0.001μF | 1 |
| C133 | ECQG1H472KZ | 0.0047μF | 1 |
| C134 | ECQG1H102KZ | 0.001μF | 1 |
| C136 | ECQG1H332KZ | 0.0033μF | 1 |
| C137 | ECEA1HU010 | 1μF, 50V | 1 |
| C138, 139 | ECKR1E473ZV | 0.047μF | 2 |
| C140 | ECQG1H332KZ | 0.0033μF | 1 |
| C141 | ECQG1H682KZ | 0.0068μF | 1 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| C142, 143 | ECKR1E473ZV | 0.047μF | 2 |
| C144 | ECQG1H152KZ | 0.0015μF | 1 |
| C145 | ECQG1H332KZ | 0.0033μF | 1 |
| C146, 147 | ECKR1E473ZV | 0.047μF | 2 |
| C148 | ECQG1H152KZ | 0.0015μF | 1 |
| C149 | ECQG1H332KZ | 0.0033μF | 1 |
| C150, 151 | ECKR1E473ZV | 0.047μF | 2 |
| C152 | ECQG1H152KZ | 0.0015μF | 1 |
| C153 | ECQG1H332KZ | 0.0033μF | 1 |
| C154, 155 | ECKR1E473ZV | 0.047μF | 2 |
| C156 | ECQG1H152KZ | 0.0015μF | 1 |
| C157 | ECQG1H332KZ | 0.0033μF | 1 |
| C158 | ECQV1H104JZ | 0.1μF | 1 |
| C159 | ECCR1H221J | 220pF | 1 |
| C160, 161 | ECCR1H681J | 680pF | 2 |
| C200 | ECQG1H332KZ | 0.0033μF | 1 |
| C201~220 | ECKR1E473ZV | 0.047μF | 20 |
| C221, 222 | ECEA0JU470 | 47μF, 6.3V | 2 |
| C223 | ECKR1E473ZV | 0.047μF | 1 |
| C225, 226 | ECKR1E473ZV | 0.047μF | 2 |
| C229, 230 | ECEA0JU101 | 100μF, 6.3V | 2 |

## **SG** SOUND GENERATOR CIRCUIT

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| **INTEGRATED CIRCUITS** | | | |
| IC1 | SVIGM74LS137 | Decoder | 1 |
| ○ IC2 | SVIGU3C04159 | 4M bit Mask ROM | 1 |
| IC3, 18, 31 | MN6635 | Digital Sound Processor | 3 |
| IC4, 19, 32 | SVIGBA9221 | 12 bit D-A Converter | 3 |
| IC5, 20, 33 | SVIGM5238L | Operational Amplifier | 3 |
| IC6, 21, 34 | SVIGT74H4051 | 8-channel Multiplexer | 3 |
| IC7~10,<br>22~25,<br>35~38 | SVIGM74H4066 | Quad Bilateral Switches | 12 |
| IC15, 43, 44 | SVIGM5218L | Operational Amplifier | 3 |
| IC16 | MN40174B | D-type Flip-Flop (Latch) | 1 |
| ○ IC17 | SVIGU3C04160 | 4M bit Mask ROM | 1 |
| ○ IC30 ┌IC1 | SVIGU3C04163 | 4M bit Mask ROM | 1 |
| └IC2 | SVIGU3C04164 | 4M bit Mask ROM | 1 |
| **TRANSISTOR** | | | |
| Q1 | 2SC1047C | | 1 |
| **OSCILLATORS** | | | |
| X1, 2 | SVQG49S1600T | 16MHz, Quartz Oscillator | 2 |
| **COMPONENT COMBINATIONS** | | | |
| Z1~3 | EXKS14Z2073 | 1KΩ/2KΩ, Ladder Network | 3 |
| **RESISTORS** | | | |
| R1 | ERDS2TJ103 | 10KΩ | 1 |
| R2 | ERDS2TJ102 | 1KΩ | 1 |
| R3 | ERDS2TJ472 | 4.7KΩ | 1 |
| R4, 5 | ER0S2CKF4700 | 470Ω, ±1% | 2 |
| R6, 7 | ERDS2TJ471 | 470Ω | 2 |
| R8 | ERDS2TJ123 | 12KΩ | 1 |
| R9, 10 | ER0S2CKF4700 | 470Ω, ±1% | 2 |
| R11, 12 | ERDS2TJ471 | 470Ω | 2 |
| R13 | ERDS2TJ123 | 12KΩ | 1 |
| R14, 15 | ER0S2CKF4700 | 470Ω, ±1% | 2 |
| R16, 17 | ERDS2TJ471 | 470Ω | 2 |
| R18 | ERDS2TJ123 | 12KΩ | 1 |
| R19 | ERDS2TJ151 | 150Ω | 1 |
| R20, 21 | ERDS2TJ331 | 330Ω | 2 |
| R22 | ERDS2TJ473 | 47KΩ | 1 |
| R23 | ERDS2TJ151 | 150Ω | 1 |
| R24, 25 | ERDS2TJ331 | 330Ω | 2 |
| R26 | ERDS2TJ473 | 47KΩ | 1 |
| R27 | ERDS2TJ151 | 150Ω | 1 |
| R28, 29 | ERDS2TJ331 | 330Ω | 2 |
| R30 | ERDS2TJ473 | 47KΩ | 1 |
| R31 | ERDS2TJ151 | 150Ω | 1 |
| R32, 33 | ERDS2TJ331 | 330Ω | 2 |
| R34 | ERDS2TJ473 | 47KΩ | 1 |
| R35 | ERDS2TJ151 | 150Ω | 1 |
| R36, 37 | ERDS2TJ331 | 330Ω | 2 |
| R38 | ERDS2TJ473 | 47KΩ | 1 |
| R39 | ERDS2TJ151 | 150Ω | 1 |
| R40, 41 | ERDS2TJ331 | 330Ω | 2 |
| R42 | ERDS2TJ473 | 47KΩ | 1 |
| R43 | ERDS2TJ151 | 150Ω | 1 |
| R44, 45 | ERDS2TJ331 | 330Ω | 2 |
| R46 | ERDS2TJ473 | 47KΩ | 1 |
| R47 | ERDS2TJ151 | 150Ω | 1 |
| R48, 49 | ERDS2TJ331 | 330Ω | 2 |
| R50 | ERDS2TJ473 | 47KΩ | 1 |
| R51 | ERDS2TJ333 | 33KΩ | 1 |
| R52 | ERDS2TJ151 | 150Ω | 1 |
| R53, 54 | ERDS2TJ331 | 330Ω | 2 |
| R55 | ERDS2TJ473 | 47KΩ | 1 |
| R56 | ERDS2TJ151 | 150Ω | 1 |
| R57, 58 | ERDS2TJ331 | 330Ω | 2 |
| R59 | ERDS2TJ473 | 47KΩ | 1 |
| R60 | ERDS2TJ151 | 150Ω | 1 |
| R61, 62 | ERDS2TJ331 | 330Ω | 2 |
| R63 | ERDS2TJ473 | 47KΩ | 1 |
| R64 | ERDS2TJ151 | 150Ω | 1 |
| R65, 66 | ERDS2TJ331 | 330Ω | 2 |
| R67 | ERDS2TJ473 | 47KΩ | 1 |
| R68 | ERDS2TJ151 | 150Ω | 1 |
| R69, 70 | ERDS2TJ331 | 330Ω | 2 |
| R71 | ERDS2TJ473 | 47KΩ | 1 |
| R72 | ERDS2TJ151 | 150Ω | 1 |
| R73, 74 | ERDS2TJ331 | 330Ω | 2 |
| R75 | ERDS2TJ473 | 47KΩ | 1 |
| R76 | ERDS2TJ151 | 150Ω | 1 |
| R77, 78 | ERDS2TJ331 | 330Ω | 2 |
| R79 | ERDS2TJ473 | 47KΩ | 1 |
| R80 | ERDS2TJ151 | 150Ω | 1 |
| R81, 82 | ERDS2TJ331 | 330Ω | 2 |
| R83 | ERDS2TJ473 | 47KΩ | 1 |
| R84 | ERDS2TJ333 | 33KΩ | 1 |
| R85 | ERDS2TJ151 | 150Ω | 1 |
| R86, 87 | ERDS2TJ331 | 330Ω | 2 |
| R88 | ERDS2TJ473 | 47KΩ | 1 |
| R89 | ERDS2TJ151 | 150Ω | 1 |
| R90, 91 | ERDS2TJ331 | 330Ω | 2 |
| R92 | ERDS2TJ473 | 47KΩ | 1 |
| R93 | ERDS2TJ151 | 150Ω | 1 |
| R94, 95 | ERDS2TJ331 | 330Ω | 2 |
| R96 | ERDS2TJ473 | 47KΩ | 1 |
| R97 | ERDS2TJ151 | 150Ω | 1 |
| R98, 99 | ERDS2TJ331 | 330Ω | 2 |
| R100 | ERDS2TJ473 | 47KΩ | 1 |
| R101 | ERDS2TJ151 | 150Ω | 1 |
| R102, 103 | ERDS2TJ331 | 330Ω | 2 |
| R104 | ERDS2TJ473 | 47KΩ | 1 |
| R105 | ERDS2TJ151 | 150Ω | 1 |

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | R106, 107 | ERDS2TJ331 | 330Ω | 2 |
| | R108 | ERDS2TJ473 | 47KΩ | 1 |
| | R109 | ERDS2TJ151 | 150Ω | 1 |
| | R110, 111 | ERDS2TJ331 | 330Ω | 2 |
| | R112 | ERDS2TJ473 | 47KΩ | 1 |
| | R113 | ERDS2TJ151 | 150Ω | 1 |
| | R114, 115 | ERDS2TJ331 | 330Ω | 2 |
| | R116 | ERDS2TJ473 | 47KΩ | 1 |
| | R117 | ERDS2TJ474 | 470KΩ | 1 |
| | R118, 119 | ERDS2TJ334 | 330KΩ | 2 |
| | R120, 121 | ERDS2TJ472 | 4.7KΩ | 2 |
| | R122, 123 ⚠ | ERD2FCJ4R7 | 4.7Ω, 1/4W, Fuse Type | 2 |
| | R124 ⚠ | ERQ14AJ2R0 | 2Ω, 1/4W, Fuse Type | 1 |
| | R125, 126 | ERDS2TJ333 | 33KΩ | 2 |
| | R127, 128 | ERDS2TJ334 | 330KΩ | 2 |
| | R130 | ERDS2TJ102 | 1KΩ | 1 |
| | **CAPACITORS** | | | |
| | C1 | ECKR1E473ZV | 0.047μF | 1 |
| | C2 | ECCR1H101J | 100pF | 1 |
| | C3~7 | ECKR1E473ZV | 0.047μF | 5 |
| | C8, 9 | ECCR1H220J | 22pF | 2 |
| | C10, 11 | ECKR1E473ZV | 0.047μF | 2 |
| ○ | C12 | ECRR1H104ZF | 0.1μF | 1 |
| | C13 | ECKR1E473ZV | 0.047μF | 1 |
| | C14, 15 | ECCR1H220J | 22pF | 2 |
| | C16 | ECCR1H221J | 220pF | 1 |
| | C17 | ECEA0JU470 | 47μF, 6.3V | 1 |
| | C18 | ECEA0JU102 | 1000μF, 6.3V | 1 |
| | C19 | ECCR1H221J | 220pF | 1 |
| | C20 | ECEA0JU470 | 47μF, 6.3V | 1 |
| | C21 | ECEA0JU101 | 100μF, 6.3V | 1 |
| | C22 | ECCR1H221J | 220pF | 1 |
| | C23 | ECEA0JU470 | 47μF, 6.3V | 1 |
| | C24 | ECEA0JU102 | 1000μF, 6.3V | 1 |
| | C25, 26 | ECEA1CU101 | 100μF, 16V | 2 |
| | C27 | ECEA0JU331 | 330μF, 6.3V | 1 |
| | C29~52 | ECQG1H472KZ | 0.0047μF | 24 |
| | C53~76 | ECQG1H102KZ | 0.001μF | 24 |
| | C77 | ECQG1H472KZ | 0.0047μF | 1 |
| | C79 | ECQG1H472KZ | 0.0047μF | 1 |
| | C80 | ECCR1H470J | 47pF | 1 |
| | C82, 83 | ECCR1H471J | 470pF | 2 |
| | C85 | ECEA0JU101 | 100μF, 6.3V | 1 |
| | C86~101 | ECKR1E473ZV | 0.047μF | 16 |
| | C102, 103 | ECQG1H102KZ | 0.001μF | 2 |
| | C104, 105 | ECCR1H470J | 47pF | 2 |
| | C106 | ECQG1H102KZ | 0.001μF | 1 |

## EJ EFFECT, MIXING & JACK CIRCUIT

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **INTEGRATED CIRCUITS** | | | |
| | IC1~4, 78 | MN40174B | D-type Flip-Flop (Latch) | 5 |
| | IC5~11, 13 | SVIGTC4052BP | Dual 4-channel Multiplexer | 8 |
| | IC12 | SVIGTC4053BP | 2-channel Multiplexer | 1 |
| | IC14~19, 22, 26~29, 38, 40, 42, 44, 46, 47, 49, 60~62, 66~77 | SVIGM5218L | Operational Amplifier | 33 |
| | IC20, 23, 37, 41, 43, 45 | SVIGUPC1252H | VCA | 6 |
| | IC21, 39 | SVIGUPC1253H | RMS Level Sensor | 2 |
| | IC24, 31~33, 50, 51 | SVIGMSM4011 | 2-Input NAND Gate | 6 |
| | IC25, 34~36 | MN3004 | BBD (512 stages) | 4 |
| | IC30, 56~59 | SVIGLM1894N | Dynamic Noise Reduction | 5 |
| | IC52, 53 | MN3006 | BBD (128 stages) | 2 |
| | IC54, 55 | SVIGBA6110 | VCA | 2 |
| | IC63~65 | SVIGM5241L | Dual VCA | 3 |
| | **TRANSISTORS** | | | |
| | Q1~3, 15~23, 42 | 2SJ105GR | FET | 13 |
| S | Q4, 6~14, 28, 29, 36~39 | 2SC2320LFG | 2SC1310FG | 16 |
| S | Q5, 26, 27, 35, 40, 41 | 2SA1015-GR | 2SA933STRS | 6 |
| | Q30, 31 | 2SC3940ARS | | 2 |
| | Q32, 33 | 2SA1534ARS | | 2 |
| | **DIODES** | | | |
| | D1~21 | MA165TA5 | | 21 |
| | D23 | MA4062 | Zener, 6.2V | 1 |
| | D24 | SVDGRK14 | | 1 |
| | **COILS** | | | |
| | L1~4<br>M MC EZ | SLQG15W34DPQ | Coil | 4 |
| | **JACKS** | | | |
| | JK1~8 | SJJG400A | AUX IN, LINE OUT, SEPARATED LINE OUT | 8 |
| | **SWITCHES** | | | |
| | S1~3 | SSSG2002A | Slide Switch | 3 |
| | **SEMI-FIXED RESISTORS** | | | |
| | VR2, 3 | EVSG0E1B223A | 22KΩ B, BBD Bias | 2 |
| | **RESISTORS** | | | |
| | R1, 2 | ERDS2TJ223 | 22KΩ | 2 |
| | R3 | ERDS2TJ273 | 27KΩ | 1 |
| | R4, 5 | ERDS2TJ473 | 47KΩ | 2 |
| | R6 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R7~9 | ERDS2TJ473 | 47KΩ | 3 |
| | R10, 11 | ERDS2TJ103 | 10KΩ | 2 |
| | R12, 13 | ERDS2TJ223 | 22KΩ | 2 |
| | R14 | ERDS2TJ273 | 27KΩ | 1 |
| | R15, 16 | ERDS2TJ473 | 47KΩ | 2 |
| | R17 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R18~20 | ERDS2TJ473 | 47KΩ | 3 |
| | R21 | ERDS2TJ103 | 10KΩ | 1 |
| | R22 | ERDS2TJ683 | 68KΩ | 1 |
| | R23 | ERDS2TJ333 | 33KΩ | 1 |
| | R24 | ERDS2TJ223 | 22KΩ | 1 |
| | R25 | ERDS2TJ273 | 27KΩ | 1 |
| | R26, 27 | ERDS2TJ473 | 47KΩ | 2 |
| | R28 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R29~31 | ERDS2TJ473 | 47KΩ | 3 |
| | R32 | ERDS2TJ103 | 10KΩ | 1 |
| | R33, 34 | ERDS2TJ223 | 22KΩ | 2 |
| | R35 | ERDS2TJ273 | 27KΩ | 1 |
| | R36, 37 | ERDS2TJ473 | 47KΩ | 2 |
| | R38 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R39~41 | ERDS2TJ473 | 47KΩ | 3 |
| | R42 | ERDS2TJ103 | 10KΩ | 1 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| R43, 44 | ERDS2TJ223 | 22 KΩ | 2 |
| R45 | ERDS2TJ273 | 27 KΩ | 1 |
| R46 | ERDS2TJ473 | 47 KΩ | 1 |
| R47 | ERDS2TJ223 | 22 KΩ | 1 |
| R48 | ERDS2TJ472 | 4.7 KΩ | 1 |
| R49~51 | ERDS2TJ473 | 47 KΩ | 3 |
| R52 | ERDS2TJ103 | 10 KΩ | 1 |
| R53, 54 | ERDS2TJ223 | 22 KΩ | 2 |
| R55 | ERDS2TJ273 | 27 KΩ | 1 |
| R56 | ERDS2TJ473 | 47 KΩ | 1 |
| R57 | ERDS2TJ103 | 10 KΩ | 1 |
| R58 | ERDS2TJ472 | 4.7 KΩ | 1 |
| R59 | ERDS2TJ332 | 3.3 KΩ | 1 |
| R60 | ERDS2TJ154 | 150 KΩ | 1 |
| R61 | ERDS2TJ474 | 470 KΩ | 1 |
| R62 | ERDS2TJ101 | 100Ω | 1 |
| R63 | ERDS2TJ105 | 1 MΩ | 1 |
| R64 | ERDS2TJ100 | 10Ω | 1 |
| R65 | ERDS2TJ105 | 1 MΩ | 1 |
| R66 | ERDS2TJ333 | 33 KΩ | 1 |
| R67 | ERDS2TJ683 | 68 KΩ | 1 |
| R68, 69 | ERDS2TJ223 | 22 KΩ | 2 |
| R70 | ERDS2TJ473 | 47 KΩ | 1 |
| R71 | ERDS2TJ105 | 1 MΩ | 1 |
| R72 | ERDS2TJ332 | 3.3 KΩ | 1 |
| R73 | ERDS2TJ472 | 4.7 KΩ | 1 |
| R74 | ERDS2TJ682 | 6.8 KΩ | 1 |
| R75 | ERDS2TJ103 | 10 KΩ | 1 |
| R76, 77 | ERDS2TJ223 | 22 KΩ | 2 |
| R78 | ERDS2TJ103 | 10 KΩ | 1 |
| R79 | ERDS2TJ683 | 68 KΩ | 1 |
| R80 | ERDS2TJ333 | 33 KΩ | 1 |
| R81, 82 | ERDS2TJ223 | 22 KΩ | 2 |
| R83 | ERDS2TJ472 | 4.7 KΩ | 1 |
| R84 | ERDS2TJ332 | 3.3 KΩ | 1 |
| R85 | ERDS2TJ154 | 150 KΩ | 1 |
| R86, 87 | ERDS2TJ332 | 3.3 KΩ | 2 |
| R88 | ERDS2TJ154 | 150 KΩ | 1 |
| R89 | ERDS2TJ104 | 100 KΩ | 1 |
| R90 | ERDS2TJ684 | 680 KΩ | 1 |
| R91~93 | ERDS2TJ333 | 33 KΩ | 3 |
| R94 | ERDS2TJ393 | 39 KΩ | 1 |
| R95 | ERDS2TJ684 | 680 KΩ | 1 |
| R96 | ERDS2TJ103 | 10 KΩ | 1 |
| R97 | ERDS2TJ153 | 15 KΩ | 1 |
| R98 | ERDS2TJ154 | 150 KΩ | 1 |
| R99 | ERDS2TJ333 | 33 KΩ | 1 |
| R100 ⚠ | ERD2FCG220 | 22Ω, 1/4W, Fuse Type | 1 |
| R101 | ERDS2TJ683 | 68 KΩ | 1 |
| R102~104 | ERDS2TJ105 | 1 MΩ | 3 |
| R105 | ERDS2TJ473 | 47 KΩ | 1 |
| R106 | ERDS2TJ223 | 22 KΩ | 1 |
| R107 | ERDS2TJ153 | 15 KΩ | 1 |
| R108 | ERDS2TJ154 | 150 KΩ | 1 |
| R109 | ERDS2TJ823 | 82 KΩ | 1 |
| R110 | ERDS2TJ473 | 47 KΩ | 1 |
| R111 | ERDS2TJ104 | 100 KΩ | 1 |
| R112, 113 | ERDS2TJ102 | 1 KΩ | 2 |
| R114, 115 | ERDS2TJ473 | 47 KΩ | 2 |
| R116, 117 | ERDS2TJ472 | 4.7 KΩ | 2 |
| R118, 119 | ERDS2TJ331 | 330Ω | 2 |
| R120 | ERDS2TJ681 | 680Ω | 1 |
| R121 | ERDS2TJ331 | 330Ω | 1 |
| R122~124 | ERDS2TJ103 | 10 KΩ | 3 |
| R125 | ERDS2TJ331 | 330Ω | 1 |
| R126 | ERDS2TJ153 | 15 KΩ | 1 |
| R127 | ERDS2TJ104 | 100 KΩ | 1 |
| R128 | ERDS2TJ331 | 330Ω | 1 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| R129 | ERDS2TJ153 | 15 KΩ | 1 |
| R130 | ERDS2TJ104 | 100 KΩ | 1 |
| R131 | ERDS2TJ331 | 330Ω | 1 |
| R132 | ERDS2TJ153 | 15 KΩ | 1 |
| R133 | ERDS2TJ104 | 100 KΩ | 1 |
| R134 | ERDS2TJ473 | 47 KΩ | 1 |
| R135 | ERDS2TJ104 | 100 KΩ | 1 |
| R136 | ERDS2TJ102 | 1 KΩ | 1 |
| R137 | ERDS2TJ103 | 10 KΩ | 1 |
| R138 | ERDS2TJ472 | 4.7 KΩ | 1 |
| R139 | ERDS2TJ332 | 3.3 KΩ | 1 |
| R140 | ERDS2TJ154 | 150 KΩ | 1 |
| R141 | ERDS2TJ474 | 470 KΩ | 1 |
| R142 | ERDS2TJ101 | 100Ω | 1 |
| R143 | ERDS2TJ105 | 1 MΩ | 1 |
| R145 | ERDS2TJ105 | 1 MΩ | 1 |
| R146~148 | ERDS2TJ274 | 270 KΩ | 3 |
| R149, 150 | ERDS2TJ223 | 22 KΩ | 2 |
| R151 | ERDS2TJ154 | 150 KΩ | 1 |
| R152, 153 | ERDS2TJ332 | 3.3 KΩ | 2 |
| R154, 155 | ERDS2TJ154 | 150 KΩ | 2 |
| R156 | ERDS2TJ153 | 15 KΩ | 1 |
| R157, 158 | ERDS2TJ104 | 100 KΩ | 2 |
| R159 | ERDS2TJ333 | 33 KΩ | 1 |
| R160 | ERDS2TJ103 | 10 KΩ | 1 |
| R161 | ERDS2TJ332 | 3.3 KΩ | 1 |
| R162 | ERDS2TJ472 | 4.7 KΩ | 1 |
| R163 | ERDS2TJ682 | 6.8 KΩ | 1 |
| R164 | ERDS2TJ154 | 150 KΩ | 1 |
| R165 | ERDS2TJ473 | 47 KΩ | 1 |
| R166 | ERDS2TJ332 | 3.3 KΩ | 1 |
| R167 | ERDS2TJ473 | 47 KΩ | 1 |
| R168 | ERDS2TJ332 | 3.3 KΩ | 1 |
| R169, 170 | ERDS2TJ154 | 150 KΩ | 2 |
| R171, 172 | ERDS2TJ332 | 3.3 KΩ | 2 |
| R173, 174 | ERDS2TJ154 | 150 KΩ | 2 |
| R175 | ERDS2TJ153 | 15 KΩ | 1 |
| R176 | ERDS2TJ103 | 10 KΩ | 1 |
| R177 | ERDS2TJ154 | 150 KΩ | 1 |
| R178 | ERDS2TJ153 | 15 KΩ | 1 |
| R179 | ERDS2TJ103 | 10 KΩ | 1 |
| R180 | ERDS2TJ333 | 33 KΩ | 1 |
| R181, 182 ⚠ | ERD2FCG220 | 22Ω, 1/4W, Fuse Type | 2 |
| R183 | ERDS2TJ333 | 33 KΩ | 1 |
| R184~187 | ERDS2TJ104 | 100 KΩ | 4 |
| R188 | ERDS2TJ332 | 3.3 KΩ | 1 |
| R189 | ERDS2TJ472 | 4.7 KΩ | 1 |
| R190 | ERDS2TJ332 | 3.3 KΩ | 1 |
| R191 | ERDS2TJ472 | 4.7 KΩ | 1 |
| R192, 193 | ERDS2TJ682 | 6.8 KΩ | 2 |
| R194 | ERDS2TJ393 | 39 KΩ | 1 |
| R195 | ERDS2TJ332 | 3.3 KΩ | 1 |
| R196 | ERDS2TJ222 | 2.2 KΩ | 1 |
| R197 | ERDS2TJ124 | 120 KΩ | 1 |
| R198 | ERDS2TJ474 | 470 KΩ | 1 |
| R199 | ERDS2TJ104 | 100 KΩ | 1 |
| R200 | ERDS2TJ124 | 120 KΩ | 1 |
| R201 | ERDS2TJ474 | 470 KΩ | 1 |
| R202 | ERDS2TJ104 | 100 KΩ | 1 |
| R203, 204 | ERDS2TJ473 | 47 KΩ | 2 |
| R205 | ERDS2TJ103 | 10 KΩ | 1 |
| R206 | ERDS2TJ184 | 180 KΩ | 1 |
| R207 | ERDS2TJ474 | 470 KΩ | 1 |
| R208 | ERDS2TJ124 | 120 KΩ | 1 |
| R209~211 | ERDS2TJ333 | 33 KΩ | 3 |
| R212 | ERDS2TJ184 | 180 KΩ | 1 |
| R213 | ERDS2TJ154 | 150 KΩ | 1 |
| R214, 215 | ERDS2TJ223 | 22 KΩ | 2 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| R216, 217 | ERDS2TJ473 | 47KΩ | 2 |
| R218~220 | ERDS2TJ104 | 100KΩ | 3 |
| R221 | ERDS2TJ333 | 33KΩ | 1 |
| R222 ⚠ | ERD2FCG220 | 22Ω, 1/4W, Fuse Type | 1 |
| R223 | ERDS2TJ154 | 150KΩ | 1 |
| R224 | ERDS2TJ153 | 15KΩ | 1 |
| R225 | ERDS2TJ103 | 10KΩ | 1 |
| R226 | ERDS2TJ154 | 150KΩ | 1 |
| R227, 228 | ERDS2TJ332 | 3.3KΩ | 2 |
| R229, 230 | ERDS2TJ154 | 150KΩ | 2 |
| R231, 232 | ERDS2TJ332 | 3.3KΩ | 2 |
| R233 | ERDS2TJ154 | 150KΩ | 1 |
| R234, 235 | ERDS2TJ333 | 33KΩ | 2 |
| R236 | ERDS2TJ153 | 15KΩ | 1 |
| R237 | ERDS2TJ103 | 10KΩ | 1 |
| R238 | ERDS2TJ154 | 150KΩ | 1 |
| R239 | ERDS2TJ333 | 33KΩ | 1 |
| R240 ⚠ | ERD2FCG220 | 22Ω, 1/4W, Fuse Type | 1 |
| R241~243 | ERDS2TJ104 | 100KΩ | 3 |
| R244 | ERDS2TJ473 | 47KΩ | 1 |
| R245 | ERDS2TJ684 | 680KΩ | 1 |
| R246 | ERDS2TJ154 | 150KΩ | 1 |
| R247 | ERDS2TJ104 | 100KΩ | 1 |
| R248 | ERDS2TJ154 | 150KΩ | 1 |
| R249 | ERDS2TJ104 | 100KΩ | 1 |
| R250 | ERDS2TJ473 | 47KΩ | 1 |
| R251, 252 | ERDS2TJ104 | 100KΩ | 2 |
| R253 | ERDS2TJ473 | 47KΩ | 1 |
| R254, 255 | ERDS2TJ683 | 68KΩ | 2 |
| R256~259 | ERDS2TJ103 | 10KΩ | 4 |
| R260, 261 | ERDS2TJ102 | 1KΩ | 2 |
| R262 | ERDS2TJ103 | 10KΩ | 1 |
| R263 | ERDS2TJ104 | 100KΩ | 1 |
| R264 | ERDS2TJ473 | 47KΩ | 1 |
| R265 | ERDS2TJ102 | 1KΩ | 1 |
| R267 | ERDS2TJ102 | 1KΩ | 1 |
| R268 | ERDS2TJ103 | 10KΩ | 1 |
| R269 | ERDS2TJ472 | 4.7KΩ | 1 |
| R270 | ERDS2TJ331 | 330Ω | 1 |
| R271 | ERDS2TJ681 | 680Ω | 1 |
| R272, 273 | ERDS2TJ331 | 330Ω | 2 |
| R276 | ERDS2TJ472 | 4.7KΩ | 1 |
| R277 | ERDS2TJ331 | 330Ω | 1 |
| R278 | ERDS2TJ681 | 680Ω | 1 |
| R279 | ERDS2TJ331 | 330Ω | 1 |
| R280 | ERDS2TJ104 | 100KΩ | 1 |
| R281 | ERDS2TJ473 | 47KΩ | 1 |
| R282 | ERDS2TJ104 | 100KΩ | 1 |
| R283 | ERDS2TJ331 | 330Ω | 1 |
| R285 | ERDS2TJ681 | 680Ω | 1 |
| R286 | ERDS2TJ331 | 330Ω | 1 |
| R287 | ERDS2TJ223 | 22KΩ | 1 |
| R288 | ERDS2TJ104 | 100KΩ | 1 |
| R289 | ERDS2TJ473 | 47KΩ | 1 |
| R290 | ERDS2TJ331 | 330Ω | 1 |
| R291 | ERDS2TJ153 | 15KΩ | 1 |
| R292 | ERDS2TJ473 | 47KΩ | 1 |
| R293 | ERDS2TJ473 | 47KΩ | 1 |
| R294 | ERDS2TJ224 | 220KΩ | 1 |
| R295 | ERDS2TJ104 | 100KΩ | 1 |
| R296 | ERDS2TJ334 | 330KΩ | 1 |
| R297 | ERDS2TJ224 | 220KΩ | 1 |
| R298 | ERDS2TJ222 | 2.2KΩ | 1 |
| R301 | ERDS2TJ153 | 15KΩ | 1 |
| R302 | ERDS2TJ473 | 47KΩ | 1 |
| R304 | ERDS2TJ101 | 100Ω | 1 |
| R305 | ERDS2TJ104 | 100KΩ | 1 |
| R306 | ERDS2TJ222 | 2.2KΩ | 1 |
| R307 | ERDS2TJ153 | 15KΩ | 1 |
| R308 | ERDS2TJ473 | 47KΩ | 1 |
| R309 | ERDS2TJ473 | 47KΩ | 1 |
| R310 | ERDS2TJ224 | 220KΩ | 1 |
| R311 | ERDS2TJ104 | 100KΩ | 1 |
| R312 | ERDS2TJ334 | 330KΩ | 1 |
| R313 | ERDS2TJ224 | 220KΩ | 1 |
| R314 | ERDS2TJ222 | 2.2KΩ | 1 |
| R316 | ERDS2TJ153 | 15KΩ | 1 |
| R318 | ERDS2TJ101 | 100Ω | 1 |
| R319 | ERDS2TJ104 | 100KΩ | 1 |
| R320 | ERDS2TJ222 | 2.2KΩ | 1 |
| R321 | ERDS2TJ104 | 100KΩ | 1 |
| R322 | ERDS2TJ331 | 330Ω | 1 |
| R323 | ERDS2TJ681 | 680Ω | 1 |
| R324 | ERDS2TJ331 | 330Ω | 1 |
| R327 | ERDS2TJ153 | 15KΩ | 1 |
| R328 | ERDS2TJ152 | 1.5KΩ | 1 |
| R329 | ERDS2TJ473 | 47KΩ | 1 |
| R330, 331 | ERDS2TJ474 | 470KΩ | 2 |
| R332 | ERDS2TJ104 | 100KΩ | 1 |
| R333 | ERDS2TJ334 | 330KΩ | 1 |
| R334 | ERDS2TJ224 | 220KΩ | 1 |
| R335 | ERDS2TJ222 | 2.2KΩ | 1 |
| R338 | ERDS2TJ153 | 15KΩ | 1 |
| R340 | ERDS2TJ101 | 100Ω | 1 |
| R341 | ERDS2TJ104 | 100KΩ | 1 |
| R342 | ERDS2TJ222 | 2.2KΩ | 1 |
| R343 | ERDS2TJ224 | 220KΩ | 1 |
| R344 | ERDS2TJ472 | 4.7KΩ | 1 |
| R345~347 | ERDS2TJ473 | 47KΩ | 3 |
| R348 | ERDS2TJ153 | 15KΩ | 1 |
| R349 | ERDS2TJ473 | 47KΩ | 1 |
| R350 | ERDS2TJ154 | 150KΩ | 1 |
| R351 | ERDS2TJ224 | 220KΩ | 1 |
| R352 | ERDS2TJ474 | 470KΩ | 1 |
| R353 | ERDS2TJ473 | 47KΩ | 1 |
| R354 | ERDS2TJ154 | 150KΩ | 1 |
| R355 | ERDS2TJ222 | 2.2KΩ | 1 |
| R356~358 | ERDS2TJ154 | 150KΩ | 3 |
| R359 | ERDS2TJ101 | 100Ω | 1 |
| R360 | ERDS2TJ222 | 2.2KΩ | 1 |
| R361 | ERDS2TJ472 | 4.7KΩ | 1 |
| R362~364 | ERDS2TJ473 | 47KΩ | 3 |
| R365 | ERDS2TJ153 | 15KΩ | 1 |
| R366 | ERDS2TJ154 | 150KΩ | 1 |
| R367 | ERDS2TJ224 | 220KΩ | 1 |
| R368 | ERDS2TJ474 | 470KΩ | 1 |
| R369 | ERDS2TJ473 | 47KΩ | 1 |
| R370 | ERDS2TJ154 | 150KΩ | 1 |
| R371 | ERDS2TJ222 | 2.2KΩ | 1 |
| R372 | ERDS2TJ153 | 15KΩ | 1 |
| R373 | ERDS2TJ333 | 33KΩ | 1 |
| R374 | ERDS2TJ223 | 22KΩ | 1 |
| R375 | ERDS2TJ472 | 4.7KΩ | 1 |
| R376, 377 | ERDS2TJ100 | 10Ω | 2 |
| R378, 379 | ERDS2TJ472 | 4.7KΩ | 2 |
| R380~382 | ERDS2TJ473 | 47KΩ | 3 |
| R383, 384 | ERDS2TJ153 | 15KΩ | 2 |
| R385 | ERDS2TJ471 | 470Ω | 1 |
| R386 | ERDS2TJ473 | 47KΩ | 1 |
| R387 | ERDS2TJ152 | 1.5KΩ | 1 |
| R388 | ERDS2TJ154 | 150KΩ | 1 |
| R389 | ERDS2TJ474 | 470KΩ | 1 |
| R390 | ERDS2TJ224 | 220KΩ | 1 |
| R391 | ERDS2TJ154 | 150KΩ | 1 |
| R392 | ERDS2TJ222 | 2.2KΩ | 1 |
| R393 | ERDS2TJ152 | 1.5KΩ | 1 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| R394 | ERDS2TJ333 | 33KΩ | 1 |
| R395 | ERDS2TJ153 | 15KΩ | 1 |
| R396 | ERDS2TJ223 | 22KΩ | 1 |
| R397 | ERDS2TJ472 | 4.7KΩ | 1 |
| R398, 399 | ERDS2TJ100 | 10Ω | 2 |
| R400 | ERDS2TJ472 | 4.7KΩ | 1 |
| R401 | ERDS2TJ154 | 150KΩ | 1 |
| R402 | ERDS2TJ473 | 47KΩ | 1 |
| R403 | ERDS2TJ154 | 150KΩ | 1 |
| R404 | ERDS2TJ222 | 2.2KΩ | 1 |
| R405 | ERDS2TJ154 | 150KΩ | 1 |
| R406 | ERDS2TJ473 | 47KΩ | 1 |
| R407 | ERDS2TJ154 | 150KΩ | 1 |
| R408 | ERDS2TJ473 | 47KΩ | 1 |
| R409 | ERDS2TJ154 | 150KΩ | 1 |
| R410 | ERDS2TJ222 | 2.2KΩ | 1 |
| R411 | ERDS2TJ154 | 150KΩ | 1 |
| R412 | ERDS2TJ473 | 47KΩ | 1 |
| R413 | ERDS2TJ104 | 100KΩ | 1 |
| R414 | ERDS2TJ473 | 47KΩ | 1 |
| R415 | ERDS2TJ104 | 100KΩ | 1 |
| R416 | ERDS2TJ473 | 47KΩ | 1 |
| R417 | ERDS2TJ154 | 150KΩ | 1 |
| R418 | ERDS2TJ222 | 2.2KΩ | 1 |
| R421 | ERDS2TJ222 | 2.2KΩ | 1 |
| R422 | ERDS2TJ103 | 10KΩ | 1 |
| R424 | ERDS2TJ103 | 10KΩ | 1 |
| R425 | ERDS2TJ334 | 330KΩ | 1 |
| R426 | ERDS2TJ472 | 4.7KΩ | 1 |
| R427 | ERDS2TJ221 | 220Ω | 1 |
| R428 | ERDS2TJ222 | 2.2KΩ | 1 |
| R429 | ERDS2TJ102 | 1KΩ | 1 |
| R430 | ERDS2TJ223 | 22KΩ | 1 |
| R431, 432 | ERDS2TJ102 | 1KΩ | 2 |
| R433 | ERDS2TJ473 | 47KΩ | 1 |
| R434~436 ⚠ | ERD2FCJ4R7 | 4.7Ω, 1/4W, Fuse Type | 3 |
| R437 | ERDS2TJ154 | 150KΩ | 1 |
| R438, 439 | ERDS2TJ473 | 47KΩ | 2 |
| R440 | ERDS2TJ154 | 150KΩ | 1 |
| R441, 442 | ERDS2TJ472 | 4.7KΩ | 2 |
| R443 | ERDS2TJ474 | 470KΩ | 1 |
| R444 | ERDS2TJ472 | 4.7KΩ | 1 |
| R445 | ERDS2TJ222 | 2.2KΩ | 1 |
| R446 | ERDS2TJ102 | 1KΩ | 1 |
| R447 | ERDS2TJ472 | 4.7KΩ | 1 |
| R448 | ERDS2TJ222 | 2.2KΩ | 1 |
| R449 | ERDS2TJ102 | 1KΩ | 1 |
| R450, 451 | ERDS2TJ472 | 4.7KΩ | 2 |
| R452 | ERDS2TJ681 | 680Ω | 1 |
| R453~455 | ERDS2TJ332 | 3.3KΩ | 3 |
| R456 | ERDS2TJ223 | 22KΩ | 1 |
| R457 | ERDS2TJ105 | 1MΩ | 1 |
| R458 | ERDS2TJ152 | 1.5KΩ | 1 |
| R459 | ERDS2TJ102 | 1KΩ | 1 |
| R460 | ERDS2TJ152 | 1.5KΩ | 1 |
| R461 | ERDS2TJ102 | 1KΩ | 1 |
| R462 | ERDS2TJ152 | 1.5KΩ | 1 |
| R463 | ERDS2TJ102 | 1KΩ | 1 |
| R464, 465 | ERDS2TJ105 | 1MΩ | 2 |
| R466, 467 | ERDS2TJ223 | 22KΩ | 2 |
| R468, 469 | ERDS2TJ334 | 330KΩ | 2 |
| R470 | ERDS2TJ104 | 100KΩ | 1 |
| R471 | ERDS2TJ473 | 47KΩ | 1 |
| R473 | ERDS2TJ124 | 120KΩ | 1 |
| R474 | ERDS2TJ104 | 100KΩ | 1 |
| R475 | ERDS2TJ274 | 270KΩ | 1 |
| R476 | ERDS2TJ154 | 150KΩ | 1 |
| R477 | ERDS2TJ105 | 1MΩ | 1 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| R478 | ERDS2TJ104 | 100KΩ | 1 |
| R479 | ERDS2TJ473 | 47KΩ | 1 |
| R480 | ERDS2TJ683 | 68KΩ | 1 |
| R481 | ERDS2TJ124 | 120KΩ | 1 |
| R482 | ERDS2TJ104 | 100KΩ | 1 |
| R483 | ERDS2TJ274 | 270KΩ | 1 |
| R484 | ERDS2TJ154 | 150KΩ | 1 |
| R488, 489 | ERDS2TJ154 | 150KΩ | 2 |
| R490 | ERDS2TJ683 | 68KΩ | 1 |
| R491 | ERDS2TJ124 | 120KΩ | 1 |
| R492~494 | ERDS2TJ224 | 220KΩ | 3 |
| R496, 497 | ERDS2TJ224 | 220KΩ | 2 |
| R498 | ERDS2TJ154 | 150KΩ | 1 |
| R499~501 | ERDS2TJ474 | 470KΩ | 3 |
| R502, 503 | ERDS2TJ334 | 330KΩ | 2 |
| R504 | ERDS2TJ103 | 10KΩ | 1 |
| R505 | ERDS2TJ473 | 47KΩ | 1 |
| R506 | ERDS2TJ471 | 470Ω | 1 |
| R507 ⚠ | ERD2FCG220 | 22Ω, 1/4W, Fuse Type | 1 |

## CAPACITORS

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| C1~3 | ECKR1E473ZV | 0.047μF | 3 |
| C4~6 | ECEA1HN010S | 1μF, 50V | 3 |
| C7 | ECKR1E473ZV | 0.047μF | 1 |
| C8 | ECCR1H471J | 470pF | 1 |
| C9 | ECQG1H222KZ | 0.0022μF | 1 |
| C10, 11 | ECCR1H471J | 470pF | 2 |
| C12 | ECCR1H101J | 100pF | 1 |
| C13 | ECCR1H471J | 470pF | 1 |
| C14 | ECQG1H222KZ | 0.0022μF | 1 |
| C15, 16 | ECCR1H471J | 470pF | 2 |
| C17 | ECCR1H101J | 100pF | 1 |
| C18 | ECEA1HN010S | 1μF, 50V | 1 |
| C19 | ECKR1E473ZV | 0.047μF | 1 |
| C20 | ECCR1H471J | 470pF | 1 |
| C21 | ECQG1H222KZ | 0.0022μF | 1 |
| C22, 23 | ECCR1H471J | 470pF | 2 |
| C24 | ECCR1H101J | 100pF | 1 |
| C25 | ECCR1H471J | 470pF | 1 |
| C26 | ECQG1H222KZ | 0.0022μF | 1 |
| C27, 28 | ECCR1H471J | 470pF | 2 |
| C29 | ECCR1H101J | 100pF | 1 |
| C30 | ECEA1HN010S | 1μF, 50V | 1 |
| C31 | ECKR1E473ZV | 0.047μF | 1 |
| C32 | ECQG1H102KZ | 0.001μF | 1 |
| C33 | ECQG1H222KZ | 0.0022μF | 1 |
| C34, 35 | ECCR1H471J | 470pF | 2 |
| C36 | ECCR1H101J | 100pF | 1 |
| C37~39 | ECEA1HN010S | 1μF, 50V | 3 |
| C40~42 | ECKR1E473ZV | 0.047μF | 3 |
| C43 | ECCR1H101J | 100pF | 1 |
| C44 | ECKR1E473ZV | 0.047μF | 1 |
| C45 | ECEA1HN010S | 1μF, 50V | 1 |
| C46 | ECEA1CU101 | 10μF, 16V | 1 |
| C47 | ECKR1E473ZV | 0.047μF | 1 |
| C48 | ECEA1HN010S | 1μF, 50V | 1 |
| C49 | ECQG1H102KZ | 0.001μF | 1 |
| C50 | ECQV1H104JZ | 0.1μF | 1 |
| C51 | ECEA1CU100 | 10μF, 16V | 1 |
| C52 | ECEA1HU010 | 1μF, 50V | 1 |
| C53 | ECCR1H101J | 100pF | 1 |
| C54 | ECQG1H222KZ | 0.0022μF | 1 |
| C55, 56 | ECCR1H101J | 100pF | 2 |
| C57 | ECCR1H681J | 680pF | 1 |
| C58 | ECEA1CU470 | 47μF, 16V | 1 |
| C59 | ECEA1HU010 | 1μF, 50V | 1 |
| C60 | ECQV1H104JZ | 0.1μF | 1 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| C61 | ECEA1HN010S | 1µF, 50V | 1 |
| C62 | ECEA1CU100 | 10µF, 16V | 1 |
| C63 | ECEA1HU010 | 1µF, 50V | 1 |
| C64 | ECEA1CU470 | 47µF, 16V | 1 |
| C65 | ECQM1H103KV | 0.01µF | 1 |
| C66 | ECQV1H104JZ | 0.1µF | 1 |
| C67 | ECQG1H102KZ | 0.001µF | 1 |
| C68 | ECQG1H332KZ | 0.0033µF | 1 |
| C69 | ECQV1H104JZ | 0.1µF | 1 |
| C70 | ECEA1CU470 | 47µF, 16V | 1 |
| C71 | ECQM1H103KV | 0.01µF | 1 |
| C72 | ECEA1CU100 | 10µF, 16V | 1 |
| C73 | ECQV1H473JZ | 0.047µF | 1 |
| C74 | ECQV1H104JZ | 0.1µF | 1 |
| C75 | ECEA1HU010 | 1µF, 50V | 1 |
| C76, 77 | ECKR1E473ZV | 0.047µF | 2 |
| C78~81 | ECEA1CU470 | 47µF, 16V | 4 |
| C82~91 | ECKR1E473ZV | 0.047µF | 10 |
| C92~94 | ECEA1HU2R2 | 2.2µF, 50V | 3 |
| C95 | ECEA1CU100 | 10µF, 16V | 1 |
| C96~98 | ECEA1HU2R2 | 2.2µF, 50V | 3 |
| C99 | ECEA1HN010S | 1µF, 50V | 1 |
| C100 | ECQG1H102KZ | 0.001µF | 1 |
| C101 | ECQV1H104JZ | 0.1µF | 1 |
| C102 | ECEA1CU100 | 10µF, 16V | 1 |
| C103, 104 | ECCR1H101J | 100pF | 2 |
| C105 | ECCR1H681J | 680pF | 1 |
| C106 | ECEA1CU470 | 47µF, 16V | 1 |
| C107 | ECCR1H680J | 68pF | 1 |
| C108 | ECCR1H471J | 470pF | 1 |
| C109 | ECEA1HU010 | 1µF, 50V | 1 |
| C110 | ECCR1H101J | 100pF | 1 |
| C111 | ECQG1H222KZ | 0.0022µF | 1 |
| C113, 114 | ECCR1H101J | 100pF | 2 |
| C115 | ECCR1H681J | 680pF | 1 |
| C116 | ECEA1CU470 | 47µF, 16V | 1 |
| C117 | ECCR1H471J | 470pF | 1 |
| C118 | ECCR1H680J | 68pF | 1 |
| C119 | ECEA1HU010 | 1µF, 50V | 1 |
| C120 | ECCR1H101J | 100pF | 1 |
| C121 | ECQG1H222KZ | 0.0022µF | 1 |
| C122, 123 | ECCR1H101J | 100pF | 2 |
| C124 | ECCR1H681J | 680pF | 1 |
| C125 | ECEA1CU470 | 47µF, 16V | 1 |
| C126 | ECCR1H471J | 470pF | 1 |
| C127 | ECEA1HU010 | 1µF, 50V | 1 |
| C128 | ECCR1H101J | 100pF | 1 |
| C129 | ECQG1H222KZ | 0.0022µF | 1 |
| C130 | ECQV1H474JZ | 0.47µF | 1 |
| C131 | ECQV1H473JZ | 0.047µF | 1 |
| C132 | ECQV1H683JZ | 0.068µF | 1 |
| C133 | ECQG1H682KZ | 0.0068µF | 1 |
| C136 | ECQV1H683JZ | 0.068µF | 1 |
| C137 | ECQM1H103KV | 0.01µF | 1 |
| C138 | ECEA1HU010 | 1µF, 50V | 1 |
| C139 | ECEA50ZR22 | 0.22µF, 50V | 1 |
| C140, 141 | ECCR1H101J | 100pF | 2 |
| C142 | ECQG1H102KZ | 0.001µF | 1 |
| C143 | ECEA1CU470 | 47µF, 16V | 1 |
| C144 | ECQM1H333KV | 0.033µF | 1 |
| C145 | ECCR1H681J | 680pF | 1 |
| C146 | ECCR1H680J | 68pF | 1 |
| C147 | ECEA1HU010 | 1µF, 50V | 1 |
| C148, 149 | ECCR1H101J | 100pF | 2 |
| C150 | ECQG1H102KZ | 0.001µF | 1 |
| C151 | ECEA1CU470 | 47µF, 16V | 1 |
| C152 | ECQM1H333KV | 0.033µF | 1 |
| C153 | ECCR1H681J | 680pF | 1 |
| C154 | ECCR1H680J | 68pF | 1 |
| C155 | ECEA1HU010 | 1µF, 50V | 1 |
| C156, 157 | ECCR1H220J | 22pF | 2 |
| C158 | ECCR1H470J | 47pF | 1 |
| C159 | ECCR1H471J | 470pF | 1 |
| C160 | ECCR1H680J | 68pF | 1 |
| C161 | ECQV1H104JZ | 0.1µF | 1 |
| C162 | ECEA1CU470 | 47µF, 16V | 1 |
| C163 | ECQM1H103KV | 0.01µF | 1 |
| C164 | ECQV1H104JZ | 0.1µF | 1 |
| C165 | ECQG1H102KZ | 0.001µF | 1 |
| C166 | ECQV1H104JZ | 0.1µF | 1 |
| C167 | ECQG1H332KZ | 0.0033µF | 1 |
| C168 | ECEA1CU470 | 47µF, 16V | 1 |
| C169, 170 | ECKR1E473ZV | 0.047µF | 2 |
| C171 | ECEA1CU100 | 10µF, 16V | 1 |
| C172 | ECQV1H473JZ | 0.047µF | 1 |
| C173 | ECEA1HU010 | 1µF, 50V | 1 |
| C174, 175 | ECQG1H682KZ | 0.0068µF | 2 |
| C176 | ECEA1HU010 | 1µF, 50V | 1 |
| C177 | ECEA1CU470 | 47µF, 16V | 1 |
| C178 | ECQM1H103KV | 0.01µF | 1 |
| C179 | ECEA1CU100 | 10µF, 16V | 1 |
| C180 | ECQV1H104JZ | 0.1µF | 1 |
| C181 | ECQV1H473JZ | 0.047µF | 1 |
| C182 | ECEA1CU470 | 47µF, 16V | 1 |
| C183 | ECQM1H103KV | 0.01µF | 1 |
| C184 | ECQV1H104JZ | 0.1µF | 1 |
| C185 | ECQG1H102KZ | 0.001µF | 1 |
| C186 | ECQG1H332KZ | 0.0033µF | 1 |
| C187, 188 | ECKR1E473ZV | 0.047µF | 2 |
| C189, 190 | ECEA1HN010S | 1µF, 50V | 2 |
| C191, 192 | ECCR1H331J | 330pF | 2 |
| C193, 194 | ECKR1E473ZV | 0.047µF | 2 |
| C195~197 | ECCR1H331J | 330pF | 3 |
| C198 | ECKR1E473ZV | 0.047µF | 1 |
| C199~201 | ECCR1H331J | 330pF | 3 |
| C202, 203 | ECCR1H220J | 22pF | 2 |
| C204, 205 | ECEA1HN010S | 1µF, 50V | 2 |
| C206 | ECCR1H101J | 100pF | 1 |
| C207 | ECEA1HU010 | 1µF, 50V | 1 |
| C208, 209 | ECEA1CU331 | 330µF, 16V | 2 |
| C210 | ECEA0JU101 | 100µF, 6.3V | 1 |
| C211~215 | ECKR1E473ZV | 0.047µF | 5 |
| C216 | ECEA1CU100 | 10µF, 16V | 1 |
| C217 | ECEA1HU010 | 1µF, 50V | 1 |
| C218 | ECEA1CU100 | 10µF, 16V | 1 |
| C220 | ECEA1HU010 | 1µF, 50V | 1 |
| C221~223 | ECCR1H220J | 22pF | 3 |
| C224 | ECEA1EU4R7 | 4.7µF, 25V | 1 |
| C225 | ECCR1H220J | 22pF | 1 |
| C226 | ECCR1H470J | 47pF | 1 |
| C227 | ECEA1HU010 | 1µF, 50V | 1 |
| C228 | ECCR1H151J | 150pF | 1 |
| C229, 230 | ECCR1H471J | 470pF | 2 |
| C231, 232 | ECQG1H222KZ | 0.0022µF | 2 |
| C233, 234 | ECCR1H221J | 220pF | 2 |
| C235 | ECCR1H470J | 47pF | 1 |
| C236 | ECQV1H104JZ | 0.1µF | 1 |
| C237 | ECEA1HU010 | 1µF, 50V | 1 |
| C238 | ECKR1E473ZV | 0.047µF | 1 |
| C239 | ECCR1H470J | 47pF | 1 |
| C240 | ECCR1H220J | 22pF | 1 |
| C241 | ECQV1H473JZ | 0.047µF | 1 |
| C242 | ECCR1H220J | 22pF | 1 |
| C243 | ECCR1H470J | 47pF | 1 |
| C244 | ECKR1E473ZV | 0.047µF | 1 |
| C245 | ECEA1HU010 | 1µF, 50V | 1 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| C246 | ECQG1H332KZ | 0.0033µF | 1 |
| C247 | ECQG1H102KZ | 0.001µF | 1 |
| C248 | ECQV1H104JZ | 0.1µF | 1 |
| C249 | ECQG1H472KZ | 0.0047µF | 1 |
| C250, 251 | ECEA1CU470 | 47µF, 16V | 2 |
| C252, 253 | ECKR1E473ZV | 0.047µF | 2 |
| C254 | ECEA1CU100 | 10µF, 16V | 1 |
| C255 | ECQG1H222KZ | 0.0022µF | 1 |
| C256, 257 | ECCR1H221J | 220pF | 2 |
| C258 | ECCR1H470J | 47pF | 1 |
| C259 | ECQV1H104JZ | 0.1µF | 1 |
| C260 | ECEA1HU010 | 1µF, 50V | 1 |
| C261～264 | ECCR1H470J | 47pF | 4 |
| C265 | ECEA1HU010 | 1µF, 50V | 1 |
| C266, 267 | ECEA1CU470 | 47µF, 16V | 2 |
| C268 | ECQG1H472KZ | 0.0047µF | 1 |
| C269 | ECEA1CU100 | 10µF, 16V | 1 |
| C270 | ECQV1H473JZ | 0.047µF | 1 |
| C271 | ECQG1H472KZ | 0.0047µF | 1 |
| C272 | ECQV1H104JZ | 0.1µF | 1 |
| C273 | ECQG1H102KZ | 0.001µF | 1 |
| C274 | ECQG1H332KZ | 0.0033µF | 1 |
| C275, 276 | ECEA1HU010 | 1µF, 50V | 2 |
| C277 | ECKR1E473ZV | 0.047µF | 1 |
| C278, 279 | ECCR1H470J | 47pF | 2 |
| C280, 281 | ECCR1H220J | 22pF | 2 |
| C282 | ECQM1H223KV | 0.022µF | 1 |
| C284 | ECQM1H223KV | 0.022µF | 1 |
| C286 | ECQM1H223KV | 0.022µF | 1 |
| C288～291 | ECQM1H223KV | 0.022µF | 4 |
| C292 | ECEA1HU010 | 1µF, 50V | 1 |
| C293 | ECCR1H680J | 68pF | 1 |
| C294 | ECQV1H104JZ | 0.1µF | 1 |
| C295 | ECCR1H470J | 47pF | 1 |
| C296 | ECCR1H220J | 22pF | 1 |
| C297 | ECQV1H473JZ | 0.047µF | 1 |
| C298, 299 | ECEA1HU010 | 1µF, 50V | 2 |
| C300～302 | ECKR1E473ZV | 0.047µF | 3 |
| C303 | ECEA1HN010S | 1µF, 50V | 1 |
| C304～309 | ECKR1E473ZV | 0.047µF | 6 |
| C310 | ECCR1H221J | 220pF | 1 |
| C311～318 | ECKR1E473ZV | 0.047µF | 8 |
| C320 | ECEA1HN010S | 1µF, 50V | 1 |

## DRV DIGITAL REVERB CIRCUIT

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| **INTEGRATED CIRCUITS** | | | |
| IC2 | SVIGM74HC244 | 3-State Buffer | 1 |
| ○ IC3 | SVIG87064071 | Digital Signal Processor | 1 |
| ○ IC4, 5, 13～20 | SVIGM74HC374 | 3-state D-type Flip-Flop | 10 |
| ○ IC6, 7 | SVIGHM65256 | 256K bit RAM | 2 |
| IC8 | SVIGM74HC138 | Decoder | 1 |
| ○ IC9～12, 24 | SVIGM74H164 | Shift Register | 5 |
| ○ IC21～23 | SVIGM74H74 | Dual D-type Flip-Flops | 3 |
| ○ IC25, 27 | SVIGM74H32 | Quad 2-Input OR Gates | 2 |
| ○ IC26 | SVIGM74H08 | Quad 2-Input NAND Gates | 1 |
| ○ IC28, 29 | SVIGM74H04 | Hex Inverters | 2 |
| IC30 | MN1280R | Reset IC | 1 |
| IC32, 37～39 | SVIGM5218L | Operational Amplifier | 4 |
| ○ IC33 | SVIGM5220L | Operational Amplifier | 1 |
| ○ IC34 | MN8305S | A-D Converter | 1 |
| ○ IC35 | SVIGPCM54 | D-A Converter | 1 |
| IC36 | SVIGM74H4066 | Quad Bilateral Switches | 1 |
| ○ IC41 | SVIGM5278L05 | +5V Voltage Regulator | 1 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| **DIODES** | | | |
| D3, 4 | MA165TA5 | | 2 |
| **OSCILLATORS** | | | |
| ○ X1 | SVQG49S1228T | 12.288MHz, Quartz Oscillator | 1 |
| ○ X2 | SVQG49S2000T | 20MHz, Quartz Oscillator | 1 |
| **COMPONENT COMBINATION** | | | |
| Z1 | EXBP88222JM | 2.2KΩ×8 | 1 |
| **SEMI-FIXED RESISTOR** | | | |
| VR2 | EVSG0E1B223A | 22KΩ B, Offset ADJ. | 1 |
| **RESISTORS** | | | |
| R18, 19 | ERDS2TJ473 | 47KΩ | 2 |
| R20 | ERDS2TJ682 | 6.8KΩ | 1 |
| R21～23 | ERDS2TJ473 | 47KΩ | 3 |
| R24 | ERDS2TJ103 | 10KΩ | 1 |
| R25 | ERDS2TJ224 | 220KΩ | 1 |
| R26 | ERDS2TJ103 | 10KΩ | 1 |
| R27, 28 | ERDS2TJ473 | 47KΩ | 2 |
| R29 | ERDS2TJ224 | 220KΩ | 1 |
| R30 | ERDS2TJ183 | 18KΩ | 1 |
| R31 | ERDS2TJ152 | 1.5KΩ | 1 |
| R32 | ERDS2TJ563 | 56KΩ | 1 |
| R33, 34 | ERDS2TJ823 | 82KΩ | 2 |
| R35, 36 ⚠ | ERD2FCJ4R7 | 4.7Ω, 1/4W, Fuse Type | 2 |
| R37, 38 ⚠ | ERD2FCG100 | 10Ω, 1/4W, Fuse Type | 2 |
| R39, 40 ⚠ | ERD2FCJ4R7 | 4.7Ω, 1/4W, Fuse Type | 2 |
| R41～43 | ERDS2TJ222 | 2.2KΩ | 3 |
| R44 | ERDS2TJ472 | 4.7KΩ | 1 |
| R45 | ERDS2TJ473 | 47KΩ | 1 |
| R46 | ERDS2TJ103 | 10KΩ | 1 |
| R47 | ERDS2TJ334 | 330KΩ | 1 |
| R48 | ERDS2TJ473 | 47KΩ | 1 |
| R49 | ERDS2TJ103 | 10KΩ | 1 |
| R50 | ERDS2TJ334 | 330KΩ | 1 |
| R51 | ERDS2TJ682 | 6.8KΩ | 1 |
| R52～54 | ERDS2TJ473 | 47KΩ | 3 |
| R55 | ERDS2TJ682 | 6.8KΩ | 1 |
| R56～58 | ERDS2TJ473 | 47KΩ | 3 |
| R59 | ERDS2TJ682 | 6.8KΩ | 1 |
| R60～62 | ERDS2TJ473 | 47KΩ | 3 |
| R63 | ERDS2TJ682 | 6.8KΩ | 1 |
| R64～66 | ERDS2TJ473 | 47KΩ | 3 |
| R71 | ERDS2TJ151 | 150Ω | 1 |
| R72 | ERDS2TJ105 | 1MΩ | 1 |
| **CAPACITORS** | | | |
| C12, 13 | ECQM1H153KV | 0.015µF | 2 |
| C14 | ECQG1H472KZ | 0.0047µF | 1 |
| C15, 16 | ECCR1H471J | 470pF | 2 |
| C17 | ECCR1H101J | 100pF | 1 |
| C18 | ECEA50M1R | 1µF, 50V | 1 |
| C19 | ECEA1CN100S | 10µF, 16V | 1 |
| C20 | ECEA50M1R | 1µF, 50V | 1 |
| C21 | ECQG1H472KZ | 0.0047µF | 1 |
| C22 | ECCR1H471J | 470pF | 1 |
| C23 | ECEA0JU101 | 100µF, 6.3V | 1 |
| C24 | ECEA0JU221 | 220µF, 6.3V | 1 |
| C25 | ECEA0JU331 | 330µF, 6.3V | 1 |
| C26 | ECKR1E473ZV | 0.047µF | 1 |
| C27, 28 | ECEA1CU101 | 100µF, 16V | 2 |

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | C29, 30 | ECEA1CU470 | 47μF, 16V | 2 |
| | C31, 32 | ECEA1HU010 | 1μF, 50V | 2 |
| | C33 | ECCR1H101J | 100pF | 1 |
| | C34 | ECEA1HU010 | 1μF, 50V | 1 |
| | C35 | ECCR1H101J | 100pF | 1 |
| | C36 | ECQG1H472KZ | 0.0047μF | 1 |
| | C37, 38 | ECCR1H471J | 470pF | 2 |
| | C39 | ECCR1H101J | 100pF | 1 |
| | C40 | ECQG1H472KZ | 0.0047μF | 1 |
| | C41, 42 | ECCR1H471J | 470pF | 2 |
| | C43 | ECCR1H101J | 100pF | 1 |
| | C44 | ECQG1H472KZ | 0.0047μF | 1 |
| | C45, 46 | ECCR1H471J | 470pF | 2 |
| | C47 | ECCR1H101J | 100pF | 1 |
| | C48 | ECQG1H472KZ | 0.0047μF | 1 |
| | C49, 50 | ECCR1H471J | 470pF | 2 |
| | C51 | ECCR1H101J | 100pF | 1 |
| | C64, 65 | ECEA1CU470 | 47μF, 16V | 2 |
| | C66~69 | ECCR1H220J | 22pF | 4 |
| | C70 | ECEA0JU101 | 100μF, 6.3V | 1 |
| | C72~74 | ECKR1E473ZV | 0.047μF | 3 |
| | C76, 77 | ECKR1E473ZV | 0.047μF | 2 |
| | C79 | ECKR1E473ZV | 0.047μF | 1 |
| | C82 | ECKR1E473ZV | 0.047μF | 1 |
| | C84 | ECKR1E473ZV | 0.047μF | 1 |
| | C87, 88 | ECKR1E473ZV | 0.047μF | 2 |
| | C90~94 | ECKR1E473ZV | 0.047μF | 5 |
| | C96~98 | ECKR1E473ZV | 0.047μF | 3 |
| | C99 | ECEA1CU100 | 10μF, 16V | 1 |
| | C100 | ECCR1H101J | 100pF | 1 |

## MKB 1 MANUAL KEYBOARD 1 CIRCUIT

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **INTEGRATED CIRCUITS** | | | |
| | IC1 | SVIGM74LS138 | Decoder | 1 |
| | **DIODES** | | | |
| S | D25~61 | MA162A | MA150IR | 37 |
| | **SWITCHES** | | | |
| | S25~54 | SSPG6001A | Rubber Switch (6 continuous) | 5 |
| | S55~61 | SSPG7001A | Rubber Switch (7 continuous) | 1 |
| | **CAPACITORS** | | | |
| | C1 | ECKR1E473ZV | 0.047μF | 1 |

## MKB 3 MANUAL KEYBOARD 3 CIRCUIT

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **DIODES** | | | |
| S | D13~24 | MA162A | MA150IR | 12 |
| | **SWITCHES** | | | |
| | S13~24 | SSPG6001A | Rubber Switch (6 continuous) | 2 |

## PKB PEDAL KEYBOARD CIRCUIT

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **DIODES** | | | |
| S | D1~16 | MA162A | MA150IR | 16 |
| | **SWITCHES** | | | |
| | S1~14 | SHGG50A | Rubber Switch (5 continuous) | 3 |

## EXP EXPRESSION CIRCUIT

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **Cds** | | | |
| | CS1 | SVEG5 | Light Sensitive Device | 1 |

## ACP AC POWER SUPPLY CIRCUIT

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **LINE FILTERS** | | | |
| | L1 ⚠ | SLTGLF5 | Line Filter | 1 |
| | L2 ⚠ | SLTGLF4 | Line Filter | 1 |
| | **VOLTAGE SELECTOR** | | | |
| | S1 EK XS ⚠<br>XL XR X | ESE37209 | Voltage Selector | 1 |
| | **FUSES** | | | |
| | F1 EK XS ⚠<br>XL XR X | XBA2C31TB0 | T3.15A, 250V | 1 |
| | F1 M MC ⚠ | XBA1C63NU100 | 6.3A, 125V | 1 |
| | F2 ⚠ | XBA2C16TB0 | T1.6A, 250V, European areas | 1 |
| | **CAPACITORS** | | | |
| | C1 ⚠ | ECKCVA1472MF | 4700pF, Line-Capasitor | 1 |
| | C2 ⚠ | ECQU2A104MN | 0.1μF, Across-the Line Capasitor | 1 |

## PS POWER SUPPLY CIRCUIT

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **INTEGRATED CIRCUIT** | | | |
| | IC1 | SVIGM5291P | Switching Regulator | 1 |
| | **TRANSISTORS** | | | |
| S | Q1, 2 | 2SC2320LFG | 2SC1310FG | 2 |
| | Q3 | 2SB953AQP | | 1 |
| | Q4 | 2SD1277A | | 1 |
| | Q5 | 2SB951A | | 1 |
| | Q6, 7 | 2SJ105GR | | 2 |
| | **DIODES** | | | |
| | D1~4 ⚠ | SVDGERA1502Y | Rectifier | 4 |
| | D5, 6 ⚠ | SVDS2V20 | Rectifier | 2 |
| | D7 | MA165TA5 | | 1 |
| | D8 | SVDGERC9102 | | 1 |
| | D9 | MA2062LF | Zener, 6.2V | 1 |
| | D10, 11 | MA4160 | Zener, 16, 0V | 2 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| **COIL** | | | |
| L1 | SLCG3A121T | Coil | 1 |
| **FUSES** | | | |
| F3 **M** **MC** ⚠ | XBA1C31NU100 | 3.15A, 125V | 1 |
| F5 ⚠ | XBA2C31TB0 | T3.15A, 250V, Except for [M] & [MC] | 1 |
| **RESISTORS** | | | |
| R1~3 | ERDS2TJ103 | 10KΩ | 3 |
| R4 | ERDS2TJ471 | 470Ω | 1 |
| R5, 6 | ERDS2TJ473 | 47KΩ | 2 |
| R7 | ERDS2TJ104 | 100KΩ | 1 |
| R8 | ERDS2TJ472 | 4.7KΩ | 1 |
| R9, 10 ⚠ | ERQ14AJ2R0 | 2Ω, 1/4W, Fuse Type | 2 |
| R11 ⚠ | ERX1ANJR22 | 0.22Ω, 1W, Flame-Proof | 1 |
| R12 | ERDS2TJ681 | 680Ω | 1 |
| R13 | ERDS2TJ152 | 1.5KΩ | 1 |
| R14 | ERDS2TJ101 | 100Ω | 1 |
| R15 ⚠ | ERG1ANJP391S | 390Ω, 1W, Flame-Proof | 1 |
| R16 | ERDS2TJ332 | 3.3KΩ | 1 |
| R17 | ERDS2TJ102 | 1KΩ | 1 |
| R18, 19 ⚠ | ERQ12HKR47 | 0.47Ω, 1/2W, Fuse Type | 2 |
| **CAPACITORS** | | | |
| C1 | ECEA1EU4R7 | 4.7μF, 25V | 1 |
| C2 | ECQV1H104JZ | 0.1μF | 1 |
| C3 | ECEA1VU100 | 10μF, 35V | 1 |
| C4 | ECCR1H471J | 470pF | 1 |
| C5 | ECEA0JU222 | 2200μF, 6.3V | 1 |
| C6 | ECKR1E473ZV | 0.047μF | 1 |
| C7 | ECEA1VU100 | 10μF, 35V | 1 |
| C8 | ECEA1HN010S | 1μF, 50V | 1 |
| C9 | ECEA1VU332 | 3300μF, 35V | 1 |
| C11 | ECEA1VU222 | 2200μF, 35V | 1 |
| C12 | ECEA1VU100 | 10μF, 35V | 1 |
| C13 | ECEA1HU010 | 1μF, 50V | 1 |
| C14 | ECEA0JU222 | 2200μF, 6.3V | 1 |

## PA POWER AMPLIFIER CIRCUIT

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| **INTEGRATED CIRCUITS** | | | |
| IC1, 2 | SVIGS4221M2M | Power Amplifier | 2 |
| **DIODES** | | | |
| D1, 2, 4, 5, 8, 9, 11, 12 ⚠ | SVDS3V20 | Rectifier | 8 |
| **RESISTORS** | | | |
| R1 | ERDS2TJ333 | 33KΩ | 1 |
| R2 | ERDS2TJ103 | 10KΩ | 1 |
| R3 | ERDS2TJ222 | 2.2KΩ | 1 |
| R4 | ERDS2TJ393 | 39KΩ | 1 |
| R5 | ERDS2TJ472 | 4.7KΩ | 1 |
| R6, 7 | ERDS2TJ222 | 2.2KΩ | 2 |
| R8 | ERDS2TJ224 | 220KΩ | 1 |
| R9 | ERDS2TJ103 | 10KΩ | 1 |
| R11 | ERDS2TJ681 | 680Ω | 1 |
| R12, 13 | ERDS2TJ102 | 1KΩ | 2 |
| R14 ⚠ | ERD50FJ4R7 | 4.7Ω, 1/2W, Flame-Proof | 1 |
| R15 ⚠ | ERD2FCG101 | 100Ω, 1/4W, Fuse Type | 1 |
| R16 ⚠ | ERD50FJ4R7 | 4.7Ω, 1/2W, Flame-Proof | 1 |
| R17, 18 | ERDS2TJ222 | 2.2KΩ | 2 |
| R19 | ERDS2TJ472 | 4.7KΩ | 1 |
| R20 | ERDS2TJ563 | 56KΩ | 1 |
| R21 | ERDS2TJ222 | 2.2KΩ | 1 |
| R23 | ERDS2TJ183 | 18KΩ | 1 |
| R24 | ERDS2TJ223 | 22KΩ | 1 |
| R27 | ERDS2TJ333 | 33KΩ | 1 |
| R28 | ERDS2TJ103 | 10KΩ | 1 |
| R29 | ERDS2TJ222 | 2.2KΩ | 1 |
| R30 | ERDS2TJ393 | 39KΩ | 1 |
| R31 | ERDS2TJ472 | 4.7KΩ | 1 |
| R32, 33 | ERDS2TJ222 | 2.2KΩ | 2 |
| R34 | ERDS2TJ103 | 10KΩ | 1 |
| R35 | ERDS2TJ224 | 220KΩ | 1 |
| R36 | ERDS2TJ681 | 680Ω | 1 |
| R37, 38 | ERDS2TJ102 | 1KΩ | 2 |
| R39 ⚠ | ERD50FJ4R7 | 4.7Ω, 1/2W, Flame-Proof | 1 |
| R40 ⚠ | ERD2FCG101 | 100Ω, 1/4W, Fuse Type | 1 |
| R41 ⚠ | ERD50FJ4R7 | 4.7Ω, 1/2W, Flame-Proof | 1 |
| R42, 43 | ERDS2TJ222 | 2.2KΩ | 2 |
| R44 | ERDS2TJ472 | 4.7KΩ | 1 |
| R45 | ERDS2TJ393 | 39KΩ | 1 |
| R46 | ERDS2TJ222 | 2.2KΩ | 1 |
| R47 | ERDS2TJ103 | 10KΩ | 1 |
| R48 | ERDS2TJ333 | 33KΩ | 1 |
| **CAPACITORS** | | | |
| C1 | ECQM1H153KV | 0.015μF | 1 |
| C2 | ECCR1H221J | 220pF | 1 |
| C3 | ECEA1EU100 | 10μF, 25V | 1 |
| C4 | ECEA1HU470 | 47μF, 50V | 1 |
| C5 | ECEA1HU4R7 | 4.7μF, 50V | 1 |
| C6 | ECQV1H104JZ | 0.1μF | 1 |
| C7 | ECEA1HU470 | 47μF, 50V | 1 |
| C8 | ECQV1H104JZ | 0.1μF | 1 |
| C9 | ECEA1HU470 | 47μF, 50V | 1 |
| C10 | ECEA1EU100 | 10μF, 25V | 1 |
| C11 | ECQV1H104JZ | 0.1μF | 1 |
| C12 | ECEA1HN010S | 1μF, 50V | 1 |
| C13 | ECES1HU103U | 10000μF, 50V | 1 |
| C14, 15 | ECEA50Y1 | 1μF, 50V | 2 |
| C16 | ECQM1H153KV | 0.015μF | 1 |
| C17 | ECCR1H221J | 220pF | 1 |
| C18 | ECEA1EU100 | 10μF, 25V | 1 |
| C19 | ECEA1HU470 | 47μF, 50V | 1 |
| C20 | ECEA1HU4R7 | 4.7μF, 50V | 1 |
| C21 | ECQV1H104JZ | 0.1μF | 1 |
| C22 | ECEA1HU470 | 47μF, 50V | 1 |
| C23 | ECQV1H104JZ | 0.1μF | 1 |
| C24 | ECEA1HU470 | 47μF, 50V | 1 |
| C25 | ECEA1EU100 | 10μF, 25V | 1 |
| C27 | ECCR1H221J | 220pF | 1 |
| C28 | ECQM1H153KV | 0.015μF | 1 |
| C29 | ECES1HU103U | 10000μF, 50V | 1 |
| C30 | ECQE2A104MW | 0.1μF | 1 |

## CPL UPPER CONTROL PANEL LEFT CIRCUIT

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **INTEGRATED CIRCUITS** | | | |
| | IC1 | MN15524PGY | 1 chip 4 bit Microcomputer | 1 |
| | IC2~5 | SVIGM74LS07 | Hex Buffers (O.C.) | 4 |
| | IC6 | MN1280R | Reset IC | 1 |
| | **TRANSISTORS** | | | |
| | Q1~4 | 2SA830SB | | 4 |
| | Q5 | 2SC1047C | | 1 |
| S | Q6 | 2SC2320LFG | 2SC1310FG | 1 |
| | **DIODES** | | | |
| | D1~76 | MA165TA5 | | 76 |
| | D77~144 | SVDGSEL4117R | LED (red) | 68 |
| | **OSCILLATOR** | | | |
| | X1 | EF0FC4004A3 | 4MHz, Ceramic Oscillator | 1 |
| | **SWITCHES** | | | |
| | S1~58, 60~76 | SSHG1045A | Push switch | 75 |
| | **RESISTORS** | | | |
| | R1 | ERDS2TJ222 | 2.2KΩ | 1 |
| | R2~6 | ERDS2TJ103 | 10KΩ | 5 |
| | R7~10 | ERDS2TJ152 | 1.5KΩ | 4 |
| | R11~32 | ERDS2TJ470 | 47Ω | 22 |
| | R33, 34 | ERDS2TJ472 | 4.7KΩ | 2 |
| | R35 | ERDS2TJ222 | 2.2KΩ | 1 |
| | R38~59 | ERDS2TJ152 | 1.5KΩ | 22 |
| | **CAPACITORS** | | | |
| | C1 | ECEA0JK470 | 47μF, 6.3V | 1 |
| ○ | C2 | ECRR1H104ZF | 0.1μF | 1 |
| | C3 | ECCR1H471J | 470pF | 1 |
| ○ | C4~8 | ECRR1H104ZF | 0.1μF | 5 |
| | **RESISTORS** | | | |
| | R1, 2 ⚠ | ERD2FCG100 | 10Ω, 1/4W, Fuse Type | 2 |
| | R3 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R4 | ERDS2TJ102 | 1KΩ | 1 |
| | R5 | ERDS2TJ222 | 2.2KΩ | 1 |
| | R6 | ERDS2TJ102 | 1KΩ | 1 |
| | R7 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R8 | ERDS2TJ222 | 2.2KΩ | 1 |
| | R9 | ERDS2TJ224 | 220KΩ | 1 |
| | R10 | ERDS2TJ103 | 10KΩ | 1 |
| | R11 | ERDS2TJ224 | 220KΩ | 1 |
| | R12 | ERDS2TJ103 | 10KΩ | 1 |
| | R13 | ERDS2TJ154 | 150KΩ | 1 |
| | R14 | ERDS2TJ102 | 1KΩ | 1 |
| | R15, 16 ⚠ | ERG1ANJP680S | 68Ω, 1W, Flame-Proof | 2 |
| | R17~19 | ERDS2TJ102 | 1KΩ | 3 |
| | **CAPACITORS** | | | |
| | C1, 2 | ECEA1EU470 | 47μF, 25V | 2 |
| | C3 | ECEA1HN010S | 1μF, 50V | 1 |
| | C4, 5 | ECCR1H101J | 100pF | 2 |
| | C6, 7 | ECKR1E473ZV | 0.047μF | 2 |
| | C8 | ECEA1HN010S | 1μF, 50V | 1 |

## JACK JACK CIRCUIT

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **INTEGRATED CIRCUIT** | | | |
| | IC1 | SVIGM5218L | Operational Amplifier | 1 |
| | **COILS** | | | |
| | L1, 3 | SLQG15W34DPQ | Coil | 2 |
| | L2 | SLQG15W24DPQ | Coil | 1 |
| | **JACKS** | | | |
| | JK1, 2 | SJJG470A | Line Out | 1 |
| | JK3 | SJJG210A | Mic | 1 |
| | JK4 | SJJG100A | Headphones | 1 |
| | **VARIABLE RESISTOR** | | | |
| | VR1 | EWHD5A576A54 | 500KΩ A, Mic Volume | 1 |

## CPC UPPER CONTROL PANEL CENTER CIRCUIT

| | Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **INTEGRATED CIRCUITS** | | | |
| | IC1 | MN15524PGY | 1 chip 4 bit Microcomputer | 1 |
| | IC2 | MN1280R | Reset IC | 1 |
| | IC3~6 | SVIGM74LS07 | Hex Buffers (O.C.) | 4 |
| ○ | IC10 | SVIGUPD7225 | LCD Driver | 1 |
| | **TRANSISTORS** | | | |
| | Q1~4 | 2SA830SB | | 4 |
| | Q5 | 2SC1047C | | 1 |
| S | Q6~8 | 2SC2320LFG | 2SC1310FG | 3 |
| | **DIODES** | | | |
| | D1~11, 13~71, 73~77, 151 | MA165TA5 | | 76 |
| | D78~88, 90~130, 134~144, 149, 150 | SVDGSEL4117R | LED (red) | 65 |
| | D131~133, 145~148 | SVDGSEL4417G | LED (green) | 7 |
| | **LCD DISPLAY** | | | |
| ○ | LCD1 | SXEG100A | LCD Display | 1 |
| | **OSCILLATOR** | | | |
| | X1 | EF0FC4004A3 | 4MHz, Ceramic Oscillator | 1 |
| | **SWITCHES** | | | |
| | S1~77 | SSHG1045A | Push switch | 77 |

| Ref. No. | | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **LAMPS** | | | |
| ○ | LP1~4 | XAMG6P | 8V, 150mA | 4 |
| | **RESISTORS** | | | |
| | R1 | ERDS2TJ222 | 2.2KΩ | 1 |
| | R2 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R3 | ERDS2TJ103 | 10KΩ | 1 |
| | R4 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R5 | ERDS2TJ222 | 2.2KΩ | 1 |
| | R6~9 | ERDS2TJ103 | 10KΩ | 4 |
| | R10~13 | ERDS2TJ152 | 1.5KΩ | 4 |
| | R14~35 | ERDS2TJ470 | 47Ω | 22 |
| | R36~57 | ERDS2TJ152 | 1.5KΩ | 22 |
| | R58 | ERDS2TJ103 | 10KΩ | 1 |
| | R59 | ERDS2TJ104 | 100KΩ | 1 |
| | R60~62 | ERDS2TJ472 | 4.7KΩ | 3 |
| | R64 | ERDS2TJ184 | 180KΩ | 1 |
| | **CAPACITORS** | | | |
| ○ | C1 | ECRR1H104ZF | 0.1μF | 1 |
| | C2 | ECCR1H471J | 470pF | 1 |
| ○ | C3~7 | ECRR1H104ZF | 0.1μF | 5 |
| | C8 | ECEA0JK470 | 47μF, 6.3V | 1 |

## CPR UPPER CONTROL PANEL RIGHT CIRCUIT

| Ref. No. | | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **INTEGRATED CIRCUITS** | | | |
| | IC1 | MN15524PGY | 1 chip 4 bit Microcomputer | 1 |
| | IC2 | MN1280R | Reset IC | 1 |
| | IC3~5 | SVIGM74LS07 | Hex Buffers (O.C.) | 3 |
| | **TRANSISTORS** | | | |
| | Q1~4 | 2SA830SB | | 4 |
| | Q5 | 2SC1047C | | 1 |
| S | Q6 | 2SC2320LFG | 2SC1310FG | 1 |
| | **DIODES** | | | |
| | D1~67 | MA165TA5 | | 67 |
| | D68~105, 107~132 | SVDGSEL4117R | LED (red) | 64 |
| | D106 | SVDGSEL4417G | LED (green) | 1 |
| | **OSCILLATOR** | | | |
| | X1 | EF0FC4004A3 | 4MHz, Ceramic Oscillator | 1 |
| | **SWITCHES** | | | |
| | S3~67 | SSHG1045A | Push switch | 65 |
| | **RESISTORS** | | | |
| | R1 | ERDS2TJ222 | 2.2KΩ | 1 |
| | R2 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R3 | ERDS2TJ103 | 10KΩ | 1 |
| | R4 | ERDS2TJ222 | 2.2KΩ | 1 |
| | R5~8 | ERDS2TJ152 | 1.5KΩ | 4 |
| | R9~26 | ERDS2TJ470 | 47Ω | 18 |
| | R27~46 | ERDS2TJ152 | 1.5KΩ | 20 |
| | R47~50 | ERDS2TJ103 | 10KΩ | 4 |
| | R51 | ERDS2TJ472 | 4.7KΩ | 1 |
| | **CAPACITORS** | | | |
| | C1 | ECEA0JK470 | 47μF, 6.3V | 1 |
| ○ | C2 | ECRR1H104ZF | 0.1μF | 1 |
| | C3 | ECCR1H471J | 470pF | 1 |
| ○ | C4~6 | ECRR1H104ZF | 0.1μF | 3 |

## CPSL LOWER CONTROL PANEL LEFT CIRCUIT

| Ref. No. | | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **INTEGRATED CIRCUITS** | | | |
| | IC1 | MN15524PGY | 1 chip 4 bit Microcomputer | 1 |
| | IC2, 3 | SVIGM74LS07 | Hex Buffers (O.C.) | 2 |
| ○ | IC4 | SVIGUPD7225 | LCD Driver | 1 |
| | IC5 | MN1280R | Reset IC | 1 |
| | **TRANSISTORS** | | | |
| | Q1~4 | 2SA830SB | | 4 |
| | Q5 | 2SC1047C | | 1 |
| S | Q6, 9, 10 | 2SC2320LFG | 2SC1310FG | 3 |
| S | Q7, 8 | 2SA1015-GR | 2SA933STRS | 2 |
| | **DIODES** | | | |
| | D1~67 | MA165TA5 | | 67 |
| | D68~71, 76~80, 82~85, 87, 88, 91, 92, 95, 99~101, 104~110, 116~118 | SVDGSEL4117R | LED (red) | 31 |
| | D72~75, 81, 86, 89, 90, 93, 94, 96~98, 102, 103, 111~114 | SVDGSEL4417G | LED (green) | 19 |
| | **LCD DISPLAY** | | | |
| ○ | LCD1 | SXEG110A | LCD Display | 1 |
| | **OSCILLATOR** | | | |
| | X1 | EF0FC4004A3 | 4MHz, Ceramic Oscillator | 1 |
| | **COMPONENT COMBINATIONS** | | | |
| | Z1 | EXBP86152JM | 1.5KΩ×6 | 1 |
| | Z2 | EXBP84152JM | 1.5KΩ×4 | 1 |
| | **SWITCHES** | | | |
| | S1~69 | SSHG1045A | Push switch | 69 |
| | **LAMPS** | | | |
| ○ | LP1~6 | XAMG6P | 8V, 150mA | 6 |
| | **VARIABLE RESISTORS** | | | |
| | VR1, 2 | EVD06510B24G | 20KΩ B, Tempo Control, Main Volume | 2 |
| | **RESISTORS** | | | |
| | R1 | ERDS2TJ222 | 2.2KΩ | 1 |
| | R2 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R3 | ERDS2TJ103 | 10KΩ | 1 |
| | R4 | ERDS2TJ222 | 2.2KΩ | 1 |
| | R5 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R6, 7 | ERDS2TJ103 | 10KΩ | 2 |
| | R8, 9 | ERDS2TJ152 | 1.5KΩ | 2 |
| | R10~13 | ERDS2TJ470 | 47Ω | 4 |
| | R18, 19 | ERDS2TJ330 | 33Ω | 2 |
| | R20~27 | ERDS2TJ470 | 47Ω | 8 |
| | R28~39 | ERDS2TJ152 | 1.5KΩ | 12 |
| | R44 | ERDS2TJ103 | 10KΩ | 1 |
| | R45 | ERDS2TJ104 | 100KΩ | 1 |
| | R46 | ERDS2TJ184 | 180KΩ | 1 |
| | **CAPACITORS** | | | |
| ○ | C1, 2 | ECRR1H104ZF | 0.1μF | 2 |
| ○ | C5 | ECRR1H104ZF | 0.1μF | 1 |
| | C6 | ECEA0JK470 | 47μF, 6.3V | 1 |
| | C7 | ECCR1H471J | 470pF | 1 |

## FDCU FD CONTROL UPPER CIRCUIT

| Ref. No. | | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **INTEGRATED CIRCUITS** | | | |
| | IC2 | SVIGM74LS05 | Hex Inverters (O.C.) | 1 |
| | IC3 | SVIGTC40H004 | Hex Inverters | 1 |
| | IC6 | SVIGM74LS393 | 4 bit Binary Counter | 1 |
| | IC7 | SVIGM5W17930 | FD Formatter/Controller | 1 |
| | IC8 | SVIGM74LS193 | Up/Down Counter | 1 |
| | **OSCILLATOR** | | | |
| | X1 | SVQG49S8000T | 8MHz, Quartz Oscillator | 1 |
| | **COMPONENT COMBINATION** | | | |
| | Z1 | EXBP88102JM | 1KΩ×8 | 1 |
| | **RESISTORS** | | | |
| | R2 | ERDS2TJ105 | 1MΩ | 1 |
| | R4 | ERDS2TJ103 | 10KΩ | 1 |
| | **CAPACITORS** | | | |
| ○ | C6 | ECRR1H104ZF | 0.1μF | 1 |
| | C7 | ECCR1H101J | 100pF | 1 |
| | C8 | ECCR1H330J | 33pF | 1 |
| | C9 | ECCR1H220J | 22pF | 1 |
| ○ | C14, 15 | ECRR1H104ZF | 0.1μF | 2 |
| ○ | C16 | ECEA1CX470 | 47μF, 16V | 1 |
| ○ | C17 | ECRR1H104ZF | 0.1μF | 1 |

## FDCL FD CONTROL LOWER CIRCUIT

| Ref. No. | | Part No. | Description | Per/Set |
|---|---|---|---|---|
| | **INTEGRATED CIRCUITS** | | | |
| | IC1 | MN15621PGL | 1 chip 4 bit Microcomputer | 1 |
| | IC4 | SVIGM51953A | Reset IC | 1 |
| ○ | IC5 | SVIGD4364X15 | 64K bit RAM | 1 |
| | **TRANSISTORS** | | | |
| | Q1 | 2SC1047C | | 1 |
| S | Q2 | 2SC2320LFG | 2SC1310FG | 1 |
| | **DIODE** | | | |
| | D1 | MA165TA5 | | 1 |
| | **OSCILLATOR** | | | |
| ○ | X2 | EF0FC4504A5 | 4.5MHz, Ceramic Oscillator | 1 |
| | **RESISTORS** | | | |
| | R1 | ERDS2TJ472 | 4.7KΩ | 1 |
| | R3 | ERDS2TJ103 | 10KΩ | 1 |
| | R5 | ERDS2TJ681 | 680Ω | 1 |
| | R6 | ERDS2TJ102 | 1KΩ | 1 |
| | R7 | ERDS2TJ222 | 2.2KΩ | 1 |
| | **CAPACITORS** | | | |
| ○ | C3 | ECEA1HXR33 | 0.33μF, 50V | 1 |
| ○ | C4 | ECRR1H104ZF | 0.1μF | 1 |
| | C5 | ECCR1H471J | 470pF | 1 |
| ○ | C10 | ECEA1HXR33 | 0.33μF, 50V | 1 |
| ○ | C11, 12 | ECEA1CX470 | 47μF, 16V | 2 |
| ○ | C13 | ECEA1HXR33 | 0.33μF, 50V | 1 |

## ■ WIRING PARTS (see wiring diagram on page II-1, II-2)

| Ref. No. | | Part No. | Description | Per/Set |
|---|---|---|---|---|
| ○ | W1 | SWKG08111LSA | Connector, with Wire | 1 |
| ○ | W2 | SWKG06120SSA | Connector, with Wire | 1 |
| ○ | W3 | SWKG04139ZA | Connector, with Wire | 1 |
| ○ | W4 | SWKG03110SSA | Connector, with Wire | 1 |
| ○ | W5 | SWKG114SSA | Connector, with Wire | 1 |
| ○ | W6 | SWKG126SSA | Connector, with Wire | 1 |
| | W7, 9 | SWKG1410SSA | Connector, with Wire | 2 |
| ○ | W8 | SWKG0535SSA | Connector, with Wire | 1 |
| | W10 | SWKG1074SSA | Connector, with Wire | 1 |
| ○ | W11 | SWKG1346ZA | Connector, with Wire | 1 |
| ○ | W12 | SWKG1347ZA | Connector, with Wire | 1 |
| ○ | W13 | SWKG04137LSA | Connector, with Wire | 1 |
| ○ | W14 | SWKG06126ZA | Connector, with Wire | 1 |
| ○ | W15 | SWKG06122SSB | Connector, with Wire | 1 |
| ○ | W16 | SWKG079SSA | Connector, with Wire | 1 |
| ○ | W17 | SWKG1081ZA | Connector, with Wire | 1 |
| ○ | W18 | SWKG0523SSA | Connector, with Wire | 1 |
| ○ | W19 | SWKG03111SSA | Connector, with Wire | 1 |
| ○ | W20 | SWKG127SSA | Connector, with Wire | 1 |
| ○ | W21 | SWKG1083LSA | Connector, with Wire | 1 |
| ○ | W22 | SWKG03109ZB | Connector, with Wire | 1 |
| ○ | W23 | SWKG04136LSA | Connector, with Wire | 1 |
| ○ | W24 | SWKG03112ZA | Connector, with Wire | 1 |
| ○ | W25 | SWKG1517STA | Connector, with Wire | 1 |
| ○ | W26 | SWKG1515SSA | Connector, with Wire | 1 |
| ○ | W27 | SWKG1082LSA | Connector, with Wire | 1 |
| ○ | W28 | SWKG06125ZB | Connector, with Wire | 1 |
| ○ | W29 | SWKG04138LSA | Connector, with Wire | 1 |
| | W30 | SWKG04115LTA | Connector, with Wire | 1 |

# REPLACEMENT PARTS LIST......Cabinet and Chassis Parts

**Notes:**

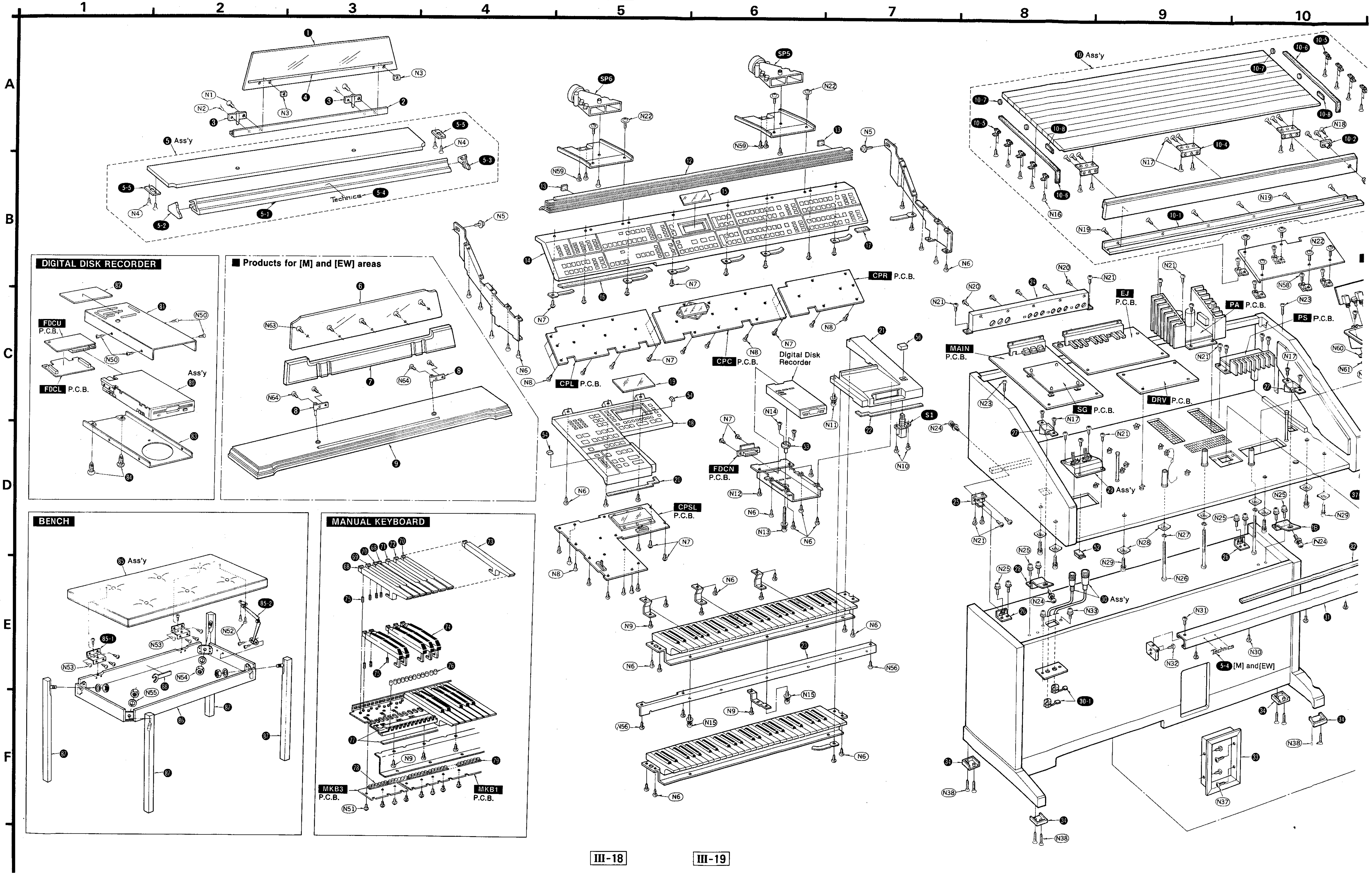
1. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
2. ○ mark are new parts.
3. For part No. with area mark, check the area when placing an order.
4. Cabinet parts number of [M] and [EW] mark are indicate the deluxe cabinet.

## ■ CABINET PARTS

|  | Ref. No. |  | Part No. | Description | Per/Set |
|---|---|---|---|---|---|
|  |  |  | **POWER SWITCH** |  |  |
|  | S1 | ⚠ | ESB90712V | Power Switch | 1 |
|  | S1 | [M] [MC] ⚠ | ESB70277T | Power Switch | 1 |
|  |  |  | **SPEAKER** |  |  |
| ○ | SP1 |  | EAS30PL142B | 30cm, 8Ω | 1 |
| ○ | SP2~4 |  | EAS20PL255C | 20cm, 8Ω | 3 |
| ○ | SP5, 6 |  | EAS8HH62A | Horn Tweeter, 16Ω | 2 |
|  |  |  | **POWER TRANSFORMER** |  |  |
| ○ | T1 | ⚠ | SLTG5S22 | Power Transformer | 1 |
| ○ | T1 | [M] [MC] ⚠ | SLTG5S21 | Power Transformer | 1 |
|  |  |  | **POWER INDICATOR** |  |  |
|  | D1 |  | LN29RP | LED, Power Indicator | 1 |
|  |  |  | **POWER CORD, PLUG** |  |  |
|  | PC1 | ⚠ [M] [MC] | SJAG22 | Power Cord | 1 |
|  | PC1 | ⚠ [XL] [XR] | SJAG23 | Power Cord | 1 |
|  | PC1 | ⚠ [EK] [XS] | SJAG25 | Power Cord | 1 |
|  | PC1 | ⚠ | SJAG24 | Power Cord<br>European and Asia areas | 1 |
|  | PC2 | [X] ⚠ | SJP5213-1 | Attachment Plug | 1 |
|  |  |  | **CABINET & OTHERS** |  |  |
| ○ | 1 |  | SKGG1B160A | Clear Panel, Music Rack | 1 |
| ○ | 2 |  | SGXG2900A | Ornament | 1 |
|  | 3 |  | SBLG230A | Stay | 2 |
| ○ | 4 |  | SHRGA7200A | Felt | 3 |
| ○ | 5 |  | SKPG980A | Top Cover Ass'y | 1 |
| ○ | 5-1 |  | SGXG2840A | Ornament | 1 |
| ○ | 5-2 |  | SHRG8350A | Cap, Left Side | 1 |
| ○ | 5-3 |  | SHRG8360A | Cap, Right Side | 1 |
|  | 5-4 |  | SGBG150A | Technics Badge | 1 |
|  | 5-5 |  | SUWG1140A | Bracket | 2 |
| ○ | 6 | [M] [EW] | SKGG1B180A | Clear Panel | 1 |
| ○ | 7 | [M] [EW] | SKGG1E110A | Ornament | 1 |
| ○ | 8 | [M] [EW] | SBLG250A | Stay | 2 |
| ○ | 9 | [M] [EW] | SKPG1000A | Top Cover | 1 |
| ○ | 10 |  | SKZG8450A | Sliding Cover Ass'y | 1 |
| ○ | 10 | [M] [EW] | SKZG8490A | Sliding Cover Ass'y | 1 |
| ○ | 10-1 |  | SGXG418A | Ornament | 1 |
| ○ | 10-1 | [M] [EW] | SGXG3010A | Ornament | 1 |
|  | 10-2 |  | SBEG30A | Lock | 1 |
|  | 10-3 |  | SBEG40C | Staple | 1 |
|  | 10-3 | [M] [EW] | SBEG40A | Staple | 1 |
|  | 10-4 |  | SBHG6007-1 | Hinge | 3 |
| ○ | 10-5 |  | SHRG9930A | Catch, Guide Rail | 10 |
| ○ | 10-6 |  | SHSG3500A | Felt | 2 |
|  | 10-7 |  | SHSG119 | Felt | 4 |
|  | 10-8 |  | SHSG146-1 | Felt | 2 |
|  | 11 |  | SBEG60A | Key | 1 |
| ○ | 12 |  | SGXG2920A | Ornament | 1 |
| ○ | 13 |  | SHSG3560A | Felt | 2 |
| ○ | 14 |  | SGWG1900B | Upper Control Panel Ass'y | 1 |
| ○ | 15 |  | SGUG30A | Display Cover Panel | 1 |
| ○ | 16 |  | SHSG5810A | Felt | 1 |
| ○ | 17 |  | SHSG5800A | Felt | 1 |
| ○ | 18 |  | SGWG8210B | Lower Control Panel, Left | 1 |
| ○ | 19 |  | SGUG40A | Display Cover Panel | 1 |
| ○ | 20 |  | SHSG5770A | Felt | 1 |
| ○ | 21 |  | SGWG8220B | Lower Control Panel, Right | 1 |
| ○ | 22 |  | SHSG5780A | Felt | 1 |
| ○ | 23 |  | SGXG2880A | Ornament, Keyboard | 1 |
| ○ | 24 |  | SMKG3302A | Jack Panel | 1 |
| ○ | 25 |  | SUWG3000A | Bracket | 2 |
| ○ | 26 |  | SUWG3020A | Bracket | 2 |
| ○ | 27 |  | SUWG3010A | Bracket | 2 |
| ○ | 28 |  | SUWG3030A | Bracket | 2 |
| ○ | 29 |  | SWKG1346ZA | Cable with Bracket | 1 |
| ○ | 30 |  | SWKG1347ZA | Cable with Bracket | 1 |
|  | 30-1 |  | SHRG1160A | Bushing | 2 |
| ○ | 31 |  | SGXG2860A | Front Panel | 1 |
| ○ | 31 | [M] [EW] | SGXG2861A | Front Panel | 1 |
|  | 32 |  | SHSG3050A | Felt | 1 |
|  | 33 |  | SGXG1100K | Ornament, Expression | 1 |
|  | 33 | [M] [EW] | SGXG1100A | Ornament, Expression | 1 |
|  | 34 |  | SHRG2120C | Foot | 4 |
| ○ | 34 | [M] [EW] | SHRG2250A | Foot | 4 |
| ○ | 35 |  | SMKG1583A | Jack Panel | 1 |
|  | 36 |  | SHR401-1 | Latch | 2 |
|  | 37 |  | SXVG3031B | Knee Lever Ass'y | 1 |
|  | 37-1 |  | SSLG1005A | Leaf Switch | 1 |
|  | 37-2 |  | SSHG1020A | Push Switch | 1 |
| ○ | 38 |  | SKEG7640A | Guide Rail | 1 |
| ○ | 39 |  | SKEG7650A | Guide Rail | 1 |
| ○ | 40 |  | SKEG7660A | Guide Rail | 1 |
| ○ | 41 |  | SKEG7670A | Guide Rail | 1 |
| ○ | 42 |  | SHSG3571A | Felt | 2 |
|  | 43 |  | SHRG1110A | Cord Clamper | 1 |
|  | 44 |  | SHRG1120A | Cord Clamper | 1 |
|  | 45 |  | SHRG8130A | Speaker Cover | 1 |
|  | 46 |  | SHSG9140A | Sound Absorbing Material | 3 |
|  | 47 |  | SXVG6010B | Expression Pedal Ass'y | 1 |
|  | 47-1 |  | XAMR55P | Lamp | 1 |
|  | 47-2 |  | RJS205ZA | Lamp Socket | 1 |
|  | 47-3 |  | SHGG908 | Lamp Holding Rubber | 1 |
|  | 47-4 |  | SSHG14 | Foot Switch | 2 |
| ○ | 48 | [E] | SKZG7780A | Rear Board (Upper),<br>European areas | 1 |
| ○ | 48 | [EK] [X] [XL] [XR] [XS] | SKZG7781A | Rear Board (Upper) | 1 |
| ○ | 48 | [M] [EW] | SKZG7800A | Rear Board (Upper) | 1 |
| ○ | 49 |  | SYUG1170A | Rear Board (Lower) | 1 |
|  | 50 |  | SHRG1030A | Cord Band | 1 |
|  | 51 |  | SHRG1070A | Cord Clamper | 1 |
|  | 52 |  | SHRG9620A | Cord Clamper | 1 |
| ○ | 53 |  | SHRG9920A | Spacer | 1 |
|  | 54 |  | SBNG7031A | Knob | 2 |
|  | 55 |  | SBNG4010A | Mic Volume Knob | 1 |
|  | 56 |  | SBCG110B | Button, Power SW | 1 |
|  |  |  | **PEDAL KEYBOARD** |  |  |
|  | 57 |  | STBG1163C | White Key (Gray) | 8 |
|  | 57 | [M] [EW] | STBG1163A | White Key (Brown) | 8 |
|  | 58 |  | STBG2052A | Black Key | 5 |
|  | 59 |  | STBG2310A | Full-Base Pedal | 1 |
|  | 60 |  | SGXG1390A | Ornament | 1 |
|  | 61 |  | SHGG50A | Rubber Switch<br>(5 continuous) | 3 |
|  | 62 |  | SHSG4770A | Felt | 1 |
|  | 63 |  | SHSG1600B | Felt | 1 |
|  | 64 |  | SHSG1460A | Felt | 14 |
|  | 65 |  | SUSG180A | Spring | 14 |
|  | 66 |  | SHGG8130A | Rubber | 14 |
|  | 67 |  | SHRG9240A | Spacer | 14 |
|  |  |  | **MANUAL KEYBOARD** |  |  |
|  | 68 |  | STBG1100A | White Key (C & F Keys) | 2 |
|  | 69 |  | STBG1110A | White Key (D Key) | 8 |
|  | 70 |  | STBG1120A | White Key (E & B Keys) | 16 |
|  | 71 |  | STBG1130A | White Key (G Key) | 8 |
|  | 72 |  | STBG1140A | White Key (A Key) | 8 |
|  | 73 |  | STBG1150A | White Key<br>(Top Octave C Key) | 2 |
|  | 74 |  | STBG2070A | Black Key | 40 |
|  | 75 |  | SUSG270A | Spring | 98 |
|  | 76 |  | SHGG9050A | Key Guide Rubber | 98 |
|  | 77 |  | SHSG1930A | Felt | 4 |
|  | 78 |  | SSPG6001A | Rubber Switch<br>(6 continuous) | 14 |
|  | 79 |  | SSPG7001A | Rubber Switch<br>(7 continuous) | 2 |
|  |  |  | **DIGITAL DISK RECORDER** |  |  |
| ○ | 80 |  | SFDG20A | Digital Disk Recorder Ass'y | 1 |
| ○ | 81 |  | SUVG1190A | Cover | 1 |
| ○ | 82 |  | SHRGA5580A | Insulator | 1 |
| ○ | 83 |  | SUVG1180A | Cover | 1 |
|  | 84 |  | SHRG9490A | P.C.B. Holder | 2 |
|  |  |  | **BENCH** (Except [M] and [EW] areas) |  |  |
| ○ | 85 |  | SKZGD820A | Top Cover | 1 |
|  | 85-1 |  | SBHG50D | Hinge | 2 |
|  | 85-2 |  | SBLG70A | Stay | 1 |
| ○ | 86 |  | SKZGC860B | Box | 1 |
|  | 87 |  | SKZGC471B | Leg | 4 |
|  | 88 |  | SBEG190A | Spanner | 1 |
|  |  |  | **BENCH** (Products for [M] and [EW] areas) |  |  |
|  | 85 | [M] [EW] | SKZGD050A | Top Cover Ass'y | 1 |
|  | 85-1 | [M] [EW] | SBHG50B | Hinge | 2 |
|  | 85-2 | [M] [EW] | SBLG70A | Stay | 1 |
|  | 86 | [M] [EW] | SKZGD060A | Box | 1 |
|  | 87 | [M] [EW] | SKZGD070A | Leg | 4 |
|  | 88 | [M] [EW] | SBEG190A | Spanner | 1 |
|  |  |  | **SCREWS & WASHERS** |  |  |
|  | N1 |  | XSB4+8FZ | Screw | 2 |
|  | N2 |  | XTB3+8JFZ | Screw | 2 |
|  | N3 |  | SNEG260B | Nut | 2 |
|  | N4 |  | XTS35+20A | Screw | 4 |
| ○ | N5 |  | SNEG2400A | Screw with Washer | 2 |
|  | N6 |  | XTB4+12A | Screw | 28 |
|  | N7 |  | XTW3+10QFVC | Screw | 18 |
|  | N8 |  | XTV3+10G | Screw | 40 |
|  | N9 |  | XTB3+5C | Screw | 12 |
|  | N10 |  | SNEG740A | Screw | 2 |
|  | N11 |  | XYN4+F10 | Screw with Washer | 1 |
|  | N12 |  | XTB4+8B | Screw | 2 |
|  | N13 |  | XYN4+F40 | Screw with Washer | 1 |
|  | N14 |  | XTS3+6B | Screw | 2 |
|  | N15 |  | XYN5+C10 | Screw with Washer | 2 |
|  | N16 |  | XTS4+12A | Screw | 20 |
|  | N17 |  | XTS35+12A | Screw | 19 |
|  | N18 |  | XTB3+10A | Screw | 3 |
|  | N19 |  | XTS3+10AFVC | Screw | 6 |
|  | N19 | [M] | XTB3+10AFZ | Screw | 6 |
| ○ | N20 |  | XTW3+10JFVC | Screw | 5 |
|  | N21 |  | XTB35+12A | Screw | 30 |
| ○ | N22 |  | XTWSG2 | Screw | 9 |
|  | N23 |  | XTT4+30A | Screw | 2 |
| ○ | N24 |  | SNEG2270A | Screw with Washer | 4 |
|  | N25 |  | XYN4+F20FZ | Screw with Washer | 12 |
|  | N26 |  | SNEG1380B | Screw | 3 |
|  | N27 |  | XWA5BFZ | Washer | 3 |
|  | N28 |  | SNEG150B | Washer | 9 |
|  | N29 |  | XYN5+C30FZ | Screw with Washer | 6 |
|  | N30 |  | XTT35+10AFVC | Screw | 6 |
|  | N31 |  | XTB3+8BFVC | Screw | 2 |
|  | N32 |  | XTB35+20A | Screw | 12 |
|  | N33 |  | XYN3+F20FZ | Screw with Washer | 2 |
|  | N34 |  | XYN3+C12 | Screw with Washer | 3 |
|  | N35 |  | XTN2+10FFX | Screw | 1 |
|  | N36 |  | XYN3+F16FZ | Screw with Washer | 2 |
|  | N37 |  | XTB3+14AFZ | Screw | 4 |
|  | N37 | [M] | XTB3+14AFVC | Screw | 4 |
|  | N38 |  | XTB35+25A | Screw | 8 |
|  | N39 |  | XTT4+16A | Screw | 6 |
|  | N40 |  | XYN4+F20 | Screw with Washer | 4 |
|  | N41 |  | XTB35+30A | Screw | 2 |
|  | N42 |  | XTT4+14A | Screw | 13 |
|  | N43 |  | SNE499-1 | Nut | 16 |
|  | N44 |  | XTN26+6B | Screw | 2 |
|  | N45 |  | XTT4+30AFVC | Screw | 18 |
|  | N46 |  | XTT4+16AFVC | Screw | 6 |
|  | N47 |  | XTB3+6B | Screw | 11 |
|  | N48 |  | XNG5BS | Nut | 14 |
|  | N49 |  | SNEG360A | Screw | 14 |
|  | N50 |  | XSS3+6FZ | Screw | 4 |
|  | N51 |  | XTW3+10T | Screw | 13 |
|  | N52 |  | XTS3+14A | Screw | 4 |
|  | N53 |  | XTB35+14AFZ | Screw | 10 |
|  | N54 |  | XNH10G | Nut | 4 |
|  | N55 |  | XWB10B | Washer | 4 |
|  | N56 |  | XTT4+10A | Screw | 3 |
|  | N57 |  | XTV3+10G | Screw | 2 |
|  | N58 |  | XTV3+10C | Screw | 5 |
|  | N59 |  | XTB4+8A | Screw | 6 |
|  | N60 |  | SNEG770A | Washer | 2 |
|  | N61 |  | XNS12FZ | Nut | 2 |
|  | N62 |  | SNE4021-1 | Nut | 1 |
|  | N63 |  | XTT4+14AFVC | Screw | 5 |
|  | N64 |  | XTB3+14AFVC | Screw | 4 |

# EXPLODED VIEWS OF CABINET

**Note:** The cabinet assembly parts will not be supplied as repair parts.



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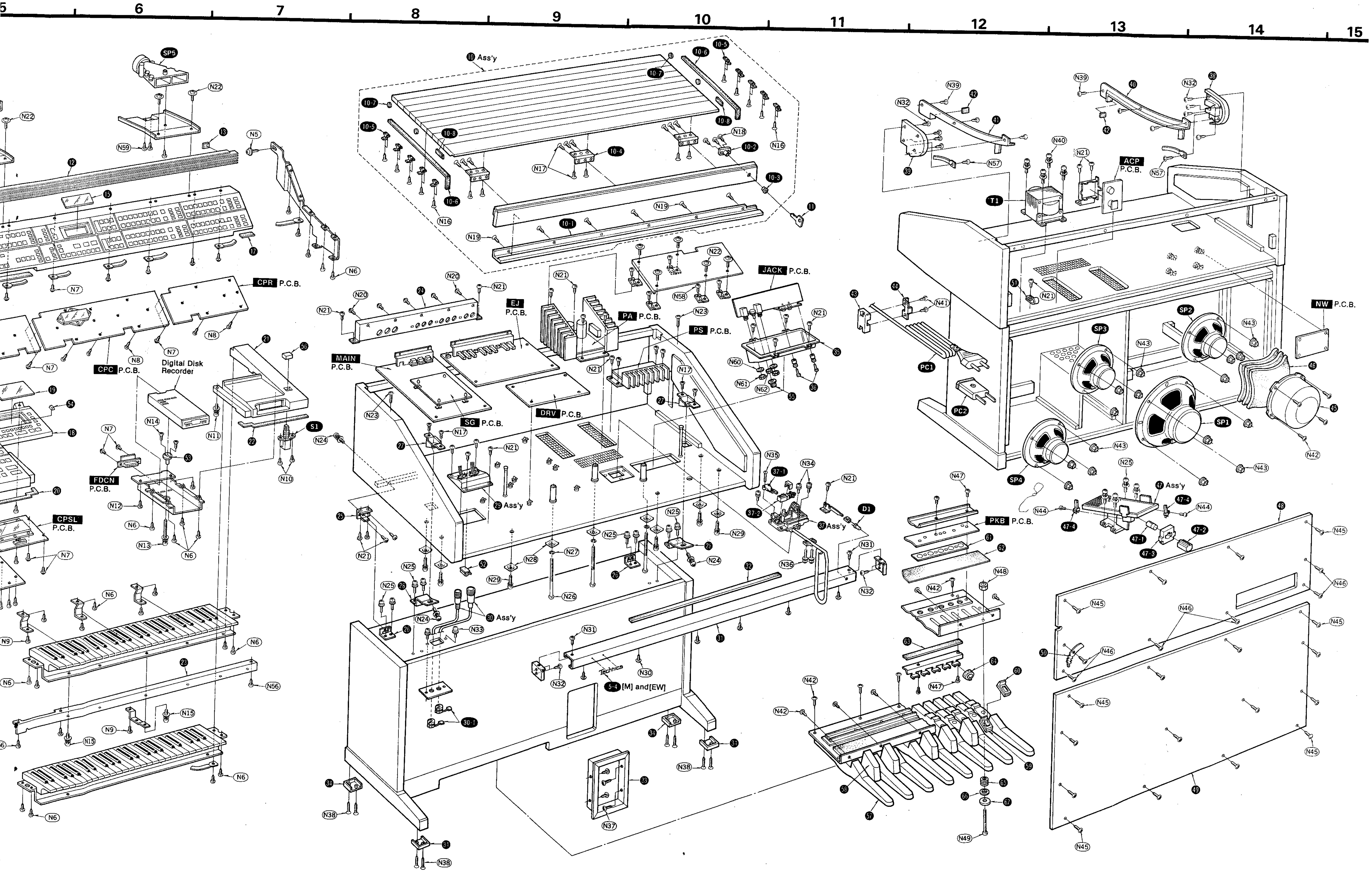
A
B
C
D
E
F
5 Ass'y
Technics
10 Ass'y
DIGITAL DISK RECORDER
FDCU P.C.B.
FDCL P.C.B.
Ass'y 80
■ Products for [M] and [EW] areas
BENCH
85 Ass'y
MANUAL KEYBOARD
MKB3 P.C.B.
MKB1 P.C.B.
SP5
SP6
CPR P.C.B.
CPC P.C.B.
CPL P.C.B.
CPSL P.C.B.
FDCN P.C.B.
Digital Disk Recorder
S1
EJ P.C.B.
PA P.C.B.
PS P.C.B.
MAIN P.C.B.
SG P.C.B.
DRV P.C.B.
29 Ass'y
30 Ass'y
5-4 [M] and [EW]

**Note:** The cabinet assembly parts will not be supplied as repair parts.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SP5
N22
N59
⑫
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⑮
⑰
N5
N6
N7
N8
CPR P.C.B.
CPC P.C.B.
Digital Disk Recorder
⑯
⑱
⑲
N14
FDCN P.C.B.
N12
N13
CPSL P.C.B.
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S1
N10
N11
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N9
N15
N56
⑩ Ass'y
10-1
10-2
10-3
10-4
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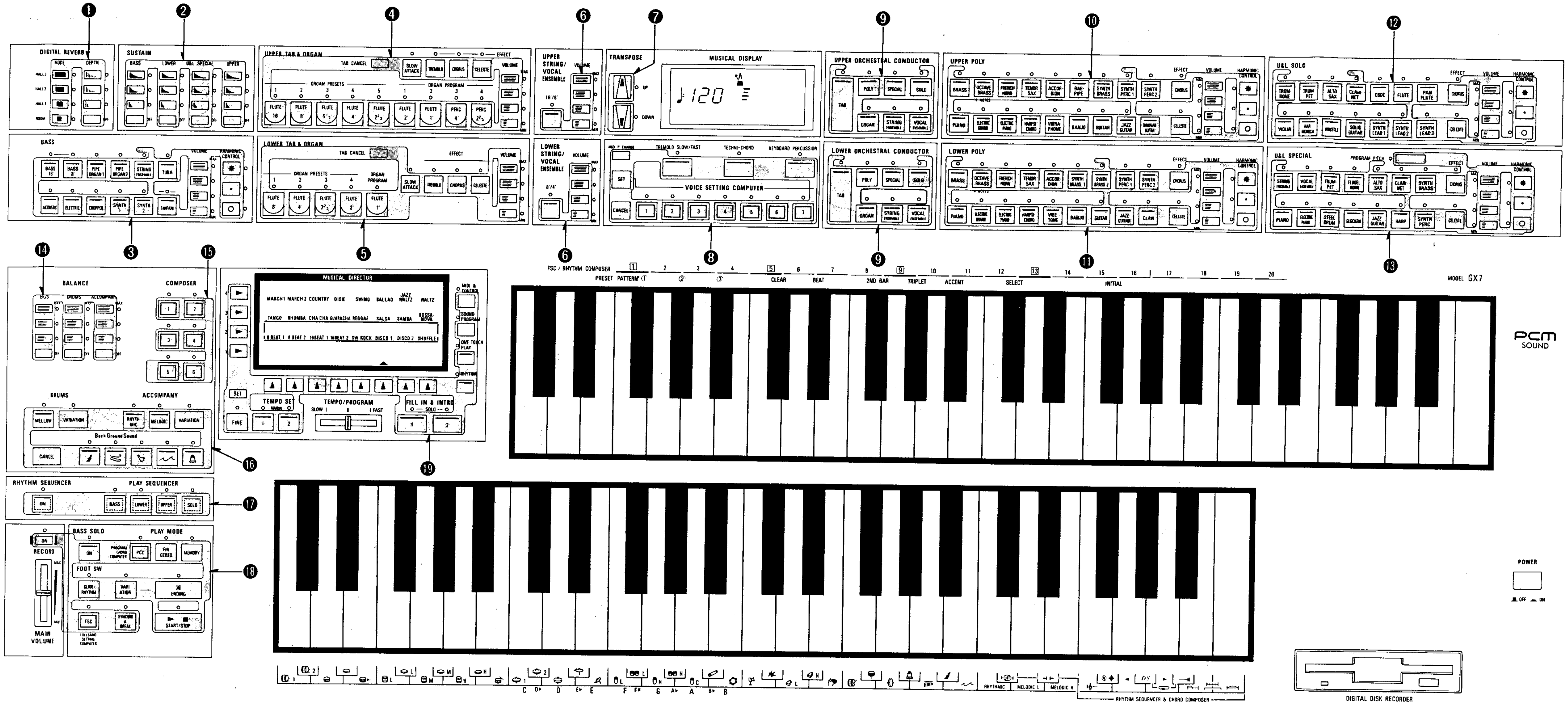
10-6
10-7
10-8
⑪
N16
N17
N18
N19
N20
N21
EJ P.C.B.
PA P.C.B.
PS P.C.B.
JACK P.C.B.
MAIN P.C.B.
SG P.C.B.
DRV P.C.B.
N23
N24
N25
N26
N27
N28
N29
㉙ Ass'y
㉚ Ass'y
30-1
N30
N31
N32
N33
N34
N35
N36
N37
N38
37-1
37-2
㊲ Ass'y
D1
Technics
5-4 [M] and [EW]
N58
N60
N61
N62
PKB P.C.B.
ACP P.C.B.
T1
N39
N40
N41
N42
N43
N44
N45
N46
N47
N48
N49
N57
NW P.C.B.
SP1
SP2
SP3
SP4
PC1
PC2
㊼ Ass'y
47-1
47-2
47-3
47-4

## ■ BUTTON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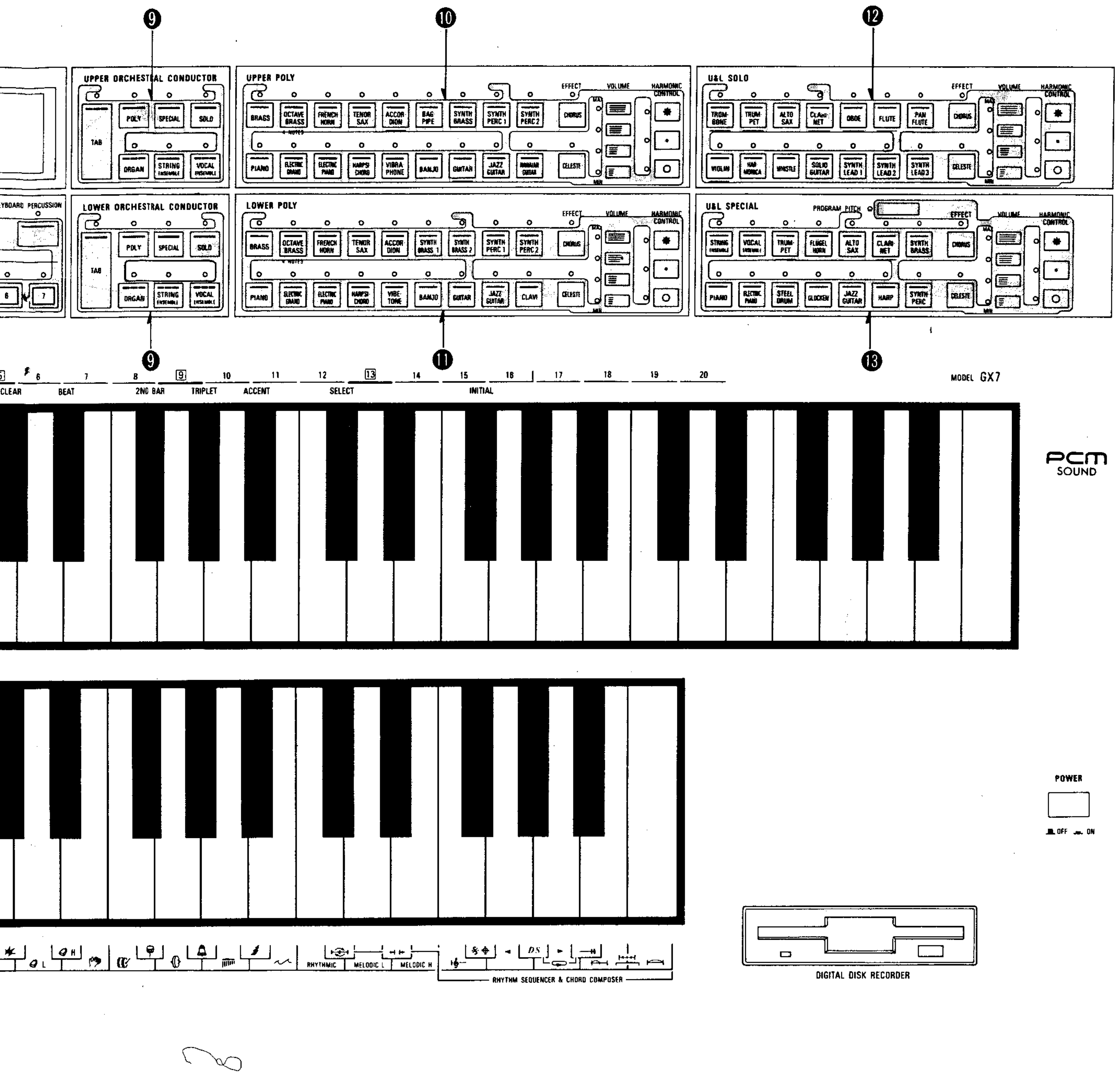
DIGITAL REVERB
SUSTAIN
UPPER TAB & ORGAN
UPPER STRING/VOCAL ENSEMBLE
TRANSPOSE
MUSICAL DISPLAY
UPPER ORCHESTRAL CONDUCTOR
UPPER POLY
U&L SOLO
BASS
LOWER TAB & ORGAN
LOWER STRING/VOCAL ENSEMBLE
VOICE SETTING COMPUTER
LOWER ORCHESTRAL CONDUCTOR
LOWER POLY
U&L SPECIAL
BALANCE
COMPOSER
MUSICAL DIRECTOR
DRUMS
ACCOMPANY
Back Ground Sound
RHYTHM SEQUENCER
PLAY SEQUENCER
BASS SOLO
PLAY MODE
RECORD
FOOT SW
MAIN VOLUME
TEMPO SET
TEMPO/PROGRAM
FILL IN & INTRO
FSC / RHYTHM COMPOSER
MODEL GX7
PCM SOUND
POWER
DIGITAL DISK RECORDER
RHYTHM SEQUENCER & CHORD COMPOSER

## ■ BUTTON

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| ○ 1 | SBCG410A | Button, Digital Reverb | 1 |
| ○ 2 | SBCG420A | Button, Sustain | 1 |
| ○ 3 | SBCG430A | Button, Bass | 1 |
| ○ 4 | SBCG440A | Button, Upper Tab & Organ | 1 |
| ○ 5 | SBCG450A | Button, Lower Tab & Organ | 1 |
| ○ 6 | SBCG460A | Button, String/Vocal Ensemble | 2 |
| ○ 7 | SBCG470A | Button, Transpose | 1 |
| ○ 8 | SBCG480A | Button, Voice Setting Computer | 1 |
| ○ 9 | SBCG490A | Button, Orchestral Conductor | 2 |
| ○ 10 | SBCG500A | Button, Upper Poly | 1 |
| ○ 11 | SBCG510A | Button, Lower Poly | 1 |

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| ○ 12 | SBCG520A | Button, U & L Solo | 1 |
| ○ 13 | SBCG530A | Button, U & L Special | 1 |
| ○ 14 | SBCG540A | Button, Balance | 1 |
| ○ 15 | SBCG550A | Button, Composer | 1 |
| ○ 16 | SBCG560A | Button, Drums, Accompany, BGS | 1 |
| ○ 17 | SBCG570A | Button, Rhythm Sequencer, Play Sequencer | 1 |
| ○ 18 | SBCG580A | Button, Record, Play Mode, etc. | 1 |
| ○ 19 | SBCG590A | Button, Musical Director, etc. | 1 |


⑨
⑩
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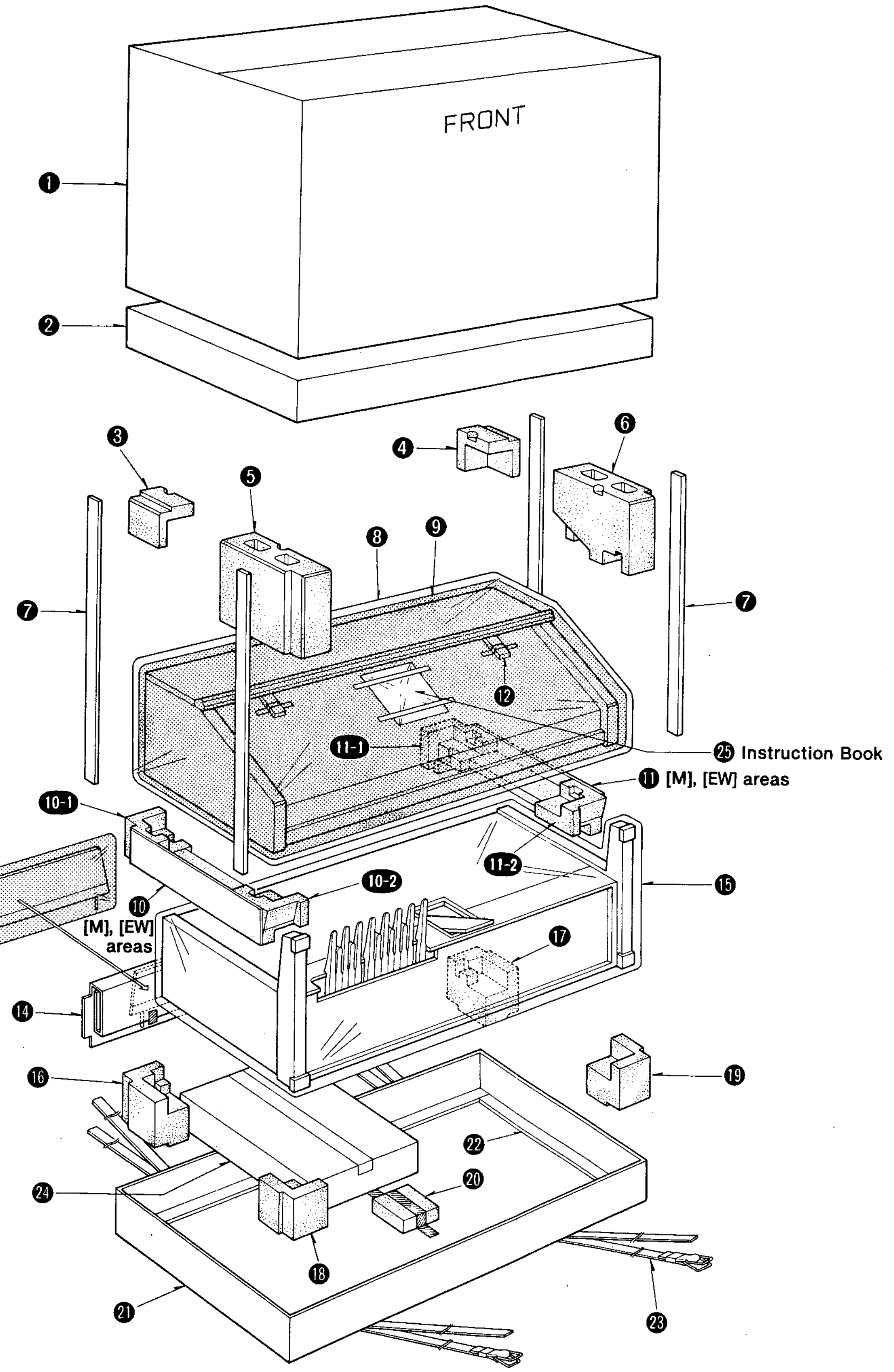
UPPER ORCHESTRAL CONDUCTOR
UPPER POLY
U&L SOLO
LOWER ORCHESTRAL CONDUCTOR
LOWER POLY
U&L SPECIAL
⑨
⑪
⑬
CLEAR
BEAT
2ND BAR
TRIPLET
ACCENT
SELECT
INITIAL
MODEL GX7
PCM SOUND
POWER
OFF ON
RHYTHMIC
MELODIC L
MELODIC H
RHYTHM SEQUENCER & CHORD COMPOSER
DIGITAL DISK RECORDER

t

# PACKING


FRONT
①
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㉕ Instruction Book
⑪ [M], [EW] areas
⑪-1
⑩-1
⑬
⑩-2
⑪-2
⑮
⑩
[M], [EW] areas
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## PACKING PARTS (Except [M] and [EW] areas)

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| ○ 1 | SPNG1991A | Carton Box | 1 |
| ○ 2 | SPNG1994A | Top Case | 1 |
| ○ 3 | SPNG5747A | Pad | 1 |
| ○ 4 | SPNG5748A | Pad | 1 |
| ○ 5 | SPNG5745A | Pad | 1 |
| ○ 6 | SPNG5746A | Pad | 1 |
| ○ 7 | SPNG3109A | Prop | 4 |
| 8 | SPHG220A | Polyethylene Bag | 1 |
| 9 | SPHG620A | Protection Sheet | 1 |
| ○ 10-1 | SPNG5743A | Pad | 1 |
| ○ 10-2 | SPNG5741A | Pad | 1 |
| ○ 11-1 | SPNG5744A | Pad | 1 |
| ○ 11-2 | SPNG5742A | Pad | 1 |
| 12 | SPNG5161A | Spacer | 2 |
| ○ 13 | SPHG2020A | Protection Sheet | 1 |
| ○ 14 | SPNG1996A | Sleeve, Music Rack | 1 |
| 15 | SPHG770A | Polyethylene Bag | 1 |
| ○ 16 | SPNG5739A | Pad | 1 |
| ○ 17 | SPNG5740A | Pad | 1 |
| ○ 18 | SPNG5737A | Pad | 1 |
| ○ 19 | SPNG5738A | Pad | 1 |
| ○ 20 | SPNG5749A | Pad | 1 |
| ○ 21 | SPNG1995A | Bottom Case | 1 |
| ○ 22 | SPNG3108A | Frame | 1 |
| 23 | SPSG40A | Band | 4 |
| ○ 24 | SPEG1165A | Packing Case, Bench | 1 |
| | | **INSTRUCTION BOOK** | |
| ○ 25 | SQFGA840 | Instruction Book, [EN] area | 1 |
| ○ 25 | SQFGA890 | Instruction Book, [MC], [EK], [EP], [X], [XL], [XR], [XS] areas | 1 |
| ○ 25 | SQFGA1060 | Instruction Book, [EZ], [EW], [EI], [EB], [EF], [EH] areas | 1 |
| ○ 25 | SQFGA930 | Instruction Book, [PA] area | 1 |

## PACKING PARTS (M and EW areas)

| Ref. No. | Part No. | Description | Per/Set |
|---|---|---|---|
| ○ 1 | SPNG2016A | Carton Box | 1 |
| ○ 2 | SPNG2020A | Top Case | 1 |
| ○ 3 | SPNG5747A | Pad | 1 |
| ○ 4 | SPNG5748A | Pad | 1 |
| ○ 5 | SPNG5767A | Pad | 1 |
| ○ 6 | SPNG5768A | Pad | 1 |
| ○ 7 | SPNG3112A | Prop | 4 |
| 8 | SPHG220A | Polyethylene Bag | 1 |
| 9 | SPHG620A | Protection Sheet | 1 |
| ○ 10 | SPNG5771A | Pad Ass'y | 1 |
| ○ 11 | SPNG5772A | Pad Ass'y | 1 |
| 12 | SPNG5161A | Spacer | 2 |
| ○ 13 | SPHG2020A | Protection Sheet | 1 |
| ○ 14 | SPNG2024A | Sleeve, Music Rack | 1 |
| 15 | SPHG770A | Polyethylene Bag | 1 |
| ○ 16 | SPNG5777A | Pad | 1 |
| ○ 17 | SPNG5778A | Pad | 1 |
| ○ 18 | SPNG5775A | Pad | 1 |
| ○ 19 | SPNG5776A | Pad | 1 |
| ○ 20 | SPNG5783A | Pad | 1 |
| ○ 21 | SPNG2022A | Bottom Case | 1 |
| ○ 22 | SPNG3110A | Frame | 1 |
| 23 | SPSG40A | Band | 4 |
| 24 | SPEG1134A | Packing Case, Bench | 1 |
| | | **INSTRUCTION BOOK** | |
| ○ 25 M | SQFGA880 | Instruction Book | 1 |
| ○ 25 EW | SQFGA1060 | Instruction Book | 1 |